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ORIGINAL ARTICLES

DIAGNOSIS AND TREATMENT OF BILIARY TRACT DISEASE*

BY FRANK H. LAHEY, M.D., F.A.C.S.

THE diagnosis of disease of the gall bladder or bile passages can be so simple that the merest tyro can hardy overlook it, or so difficult that even the oldest and most experienced of clinicians is often left in the most unsatisfactory situation of having to say to himself, "This patient has definite epigastric distress, and yet the evidence that it is of gall bladder origin is very unconvincing in character."

There are certain points in the history which are of marked value, such as the history of repeated attacks, no matter how slight, particularly if of similar character. It is assumed, of course, that we are considering only the cases which are difficult of diagnosis and atypical in character. It is to be remembered that if one were to diagnose only the cases of biliary disease of typical character, the diagnoses would be simple and almost always correct, but there would remain a very high percentage of pathological biliary conditions undiagnosed or wrongly diagnosed.

It has been our experience that the type of distress caused by gall bladder disease may vary from simple fullness after meal or discomfort after food taking to moderate degrees of discomfort, distress or tenderness up to the typical colic with its attendant torture. The reference of pain in a typical way to the right shoulder is almost the exception in our experience if all types of biliary disease be grouped under one head. We have seen the pain referred in all directions and have observed the maximum pain localized in the left epigastrium occasionally.

We believe that the point most suggestive of gall bladder and duct disease in the patient's history is the history of what we have called residual tenderness over the gall bladder region after the attack has passed away, due, probably, to the abating infection following the acute attack.

The absence of jaundice is, of course, of little significance as it has appeared in but a small percentage of our cases except when the common duct was involved, and has been absent in a very definite number of cases even when there was involvement of the common duct in the inflammatory or calculous process.

The presence of jaundice, likewise, even accompanied by some pain, is not to be accepted as convincing evidence of the presence of calculous biliary disease, the disease which it so characteristically and commonly indicates as present. We have repeatedly seen jaundice due to malignant obstruction of the common duct associated with moderate pain. We have seen jaundice associated with severe pain probably due to the passage of plugs of mucus or other non-calculous accumulations in the absence of stone formation; and lastly, we have operated one case of painless persistent jaundice of four months standing seemingly due to malignant obstruction, yet actually due to a stone at the ampulla of Vater and entirely relieved by its removal.

Painless persistent and progressive jaundice has in our experience rarely failed to reveal itself as caused by obstruction due to malignancy located most commonly in the head of the pancreas. Owing to our experience with the case referred to above, however, we strongly urge the exploration of doubtful cases.

Courvoisier's Law has been in our experience a quite reliable guide to the presence of malignancy as the cause of obstruction. In the presence of jaundice a dilated (palpable) gall bladder is indicative of biliary obstruction by a malignancy, while a contracted gall bladder is indicative of biliary obstruction by stone. It is at once evident that the really positive portion of this postulate is the dilated gall bladder. This may be palpated with the abdomen unopened, and has been the most constant and positive part of the Law. We have very rarely seen a dilated gall bladder together with jaundice, particularly if painless, when it was not due to malignant obstruction of the ducts below the level of the entrance of the cystic into the common duct. On the other hand, except where calculous biliary disease and obstruction due to malignancy have been associated, we have usually found the jaundice to be due to a stone in the common duct when the gall bladder has been found to be shrunken and contracted at operation.

With the development of tests for the determination of lesser amounts of bile in the blood than would stain the skin and produce visible icterus, it was hoped that possible aid had arrived in

*Read before the New Hampshire State Medical Society at its annual meeting at Manchester, N. H., May 20, 1925.

diagnosing the border and doubtful cases of biliary disease.

The Van der Bergh test for the bilirubin content of the blood has been reported by several observers, recently by Dr. Ravdin of Philadelphia* as of definite value in diagnosis. 0.6 mgm. of bilirubin per 100 c.c. of plasma is estimated as the maximum normal and bilirubin above that amount has been found to be due to retention caused by biliary disease. The results in our hands have been by no means as definite as some of the series reported.

However, we do regard a high bilirubin test (that is a test which shows from 0.7 mgm. upward) as a definite aid in the diagnosis of biliary disease. In the uncertain cases where frank evidence of biliary disease is not present, this test should be a criterion of value, but, unfortunately, in our series it has not proven, in these cases, to be of definite help. The cases of obvious jaundice may be followed with greater accuracy by means of bilirubin content than in any other way.

In 100 of our cases where disease of the biliary tract was a possibility, bilirubin content and icterus index tests showed the following results:

HIGHEST CONTENT OF BILIRUBIN WITHOUT OBVIOUS JAUNDICE

Icterus index
16 (Case of common duct stricture)
Bilirubin
1.8 (Case of appendicitis, no gall bladder pathology)

BILIRUBIN CONTENT IN CASES WITH OBVIOUS JAUNDICE

Jaundice slight			
Icterus index	14	Bilirubin	2.9
Jaundice moderate			
Icterus index	38	Bilirubin	4.5
Jaundice severe			
Icterus index	171	Bilirubin	11.0

The icterus index of 12 to 14 and bilirubin above 0.6 are rare in cases showing no biliary disease and when present strongly suggest gall bladder pathology, but cholelithiasis and cholecystitis were proven by operation in 5 cases where the icterus index was 10 or below and the bilirubin content was below 0.6. That the subsidence of obvious jaundice may be followed accurately by these tests is shown in one case of cholelithiasis by a drop in icterus index from 38 to 11 in ten days after cholecystectomy and drainage of the ducts.

The liver function test of Rosenthal, which consists of the determination of rate of removal of a dye (phenoltetrachlor phthalein or more recently, phenoltetrabromphthalein sodium sulphonate) from the blood stream through the activity of the liver cells, is of no greater value in the study of gall bladder disease than the bilirubin test. Liver function is so complex that in biliary disease its disturbance as measured by the retentions of bile pigment is the only point of significance.

X-Ray evidence in the diagnosis of biliary tract disease up to the present has been of value almost solely as positive evidence, that is, when the shadow of gall stones could be convincingly demonstrated. The so-called secondary evidences of the disease, such as visibility of the gall bladder (it has been assumed that all gall bladders showing a shadow by X-Ray were pathological) fixation of the duodenum and pylorus to the right, presumably by perigall-bladder adhesions and flattening of the duodenum presumably by a dilated gall bladder, have in our experience been of doubtful value, and we have allowed them to persuade us toward operative procedures ony when they were associated with clinical findings of more convincing character than this evidence alone.

The introduction by Dr. Evarts Graham of the method of making the gall badder visible by X-Ray by the intravenous or oral administration of tetraiodophenolphthalein offers apparently very great possibilities diagnostically, particularly in those obscure and doubtful cases of chronic cholecystitis, hitherto not shown by X-Ray and possessing little other demonstrable clinical evidence of their presence.

This method of cholecystography consists of the intravenous or oral administration of tetraiodophenolphthalein (3. to 3.5 gm.) and the takin of X-Ray plates before the use of the salt and again in four hours, eight hours, twelve hours, and twenty-four hours after the intravenous injection or fifteen or seventeen hours after the oral ingestion of the dye. When the drug is given by mouth, the patient is X-Rayed again one hour after a meal which follows the taking of the fifteen or seventeen hour plate. The shadow of the normal gall bladder after the meal should show a contracted gall bladder.

Our clinical experience with the method, particularly with its later changes and refinements in the purity of the salt, has been quite satisfactory and of distinct aid in the diagnosis of doubtful cases. Graham has recently reported 200 cases with 80 operative proofs and 96% correct diagnoses by cholecystography. There is still great need for further observations with this method and the establishment of more numerous and more definite diagnostic criteria, but even at this stage, the method offers great possibilities as a diagnostic aid. At present the homogeneous filling of the gall bladder with normal contour in four hours and the beginning of contraction within eight hours are considered indicative of no pathology, whereas the failure to fill, abnormalities of contour, shadows of calculi within the filled gall bladder and the failure to empty in twenty-four hours are suggestive of pathology.

Illustrations No. 1 and No. 2 show shadows of gall bladders filled with dye, in which the use of the dye was of definite value, inasmuch as

*American Journal of Medical Sciences, June, 1925, pp. 850-860.

in illustration No. 1 the shape of the filled gall bladder suggested rather definitely the presence of adhesions. In illustration No. 2 cholesterin stones which were not visualized in a plain plate, were seen when the gall bladder was filled with dye.

There have been definite reactions to the in-

FIG. 1. Showing dye-filled gall bladder with loss of normal contour due to pericholecystitic adhesions.

gestion and the intravenous use of the dye, largely of nausea and vomiting, which were in all probability the result of the use of impure salts. None of these reactions has been in any way serious, and will doubtless be eliminated now by further purifying of the iodide salt.

The use of the duodenal tube together with the introduction of magnesium sulphate as suggested by Meltzer and Lyons has not in our opinion or experience proven reliable or of any great worth. It is difficult to understand why the gall bladder does not drain itself as well after the ingestion of a meal as by the method of duodenal drainage. Certainly with the use of the dye it has been demonstrated that the gall bladder is completely emptied after the ingestion of food, especially fat food.

Even in those cases of persistent painless jaundice, where it is highly desirable to determine whether or not the obstruction is of malignant origin, this test fails us, as the introduction of magnesium sulphate has occasionally permitted bile to come through even when the obstruction has apparently been complete from malignancy and of quite long standing, giving thus no distinguishing factor between the types of obstruction with acholic stools.

Jaundice as a complication of biliary tract disease is at times a serious problem both from the point of view of diagnosis and particularly as to the possibility of hemorrhage in connection with surgical treatment.

In the jaundiced patient one must determine whether the jaundice is obstructive or the result of infection or other changes within the liver itself, such as interstitial cholangitis or infectious jaundice, acute destructive hepatitis, due to mineral poisoning, cirrhosis, or syphilis. If obstructive, the decision must be made as to whether the interference with the outflow of bile is due to stone, malignancy, scar or adhesions.

FIG. 2. Showing dye-filled gall bladder with areas of mottling due to cholesterin stones. (Before the use of dye neither gall bladder nor stones were visualized.)

In general, those cases showing intermittent attacks of jaundice, particularly when associated with pain, also when associated with temperature, and quite convincingly when associated with persisting residual tenderness, are of common duct stone origin.

Those cases showing persistent progressive

and painless jaundice, particularly those cases in which there is no interruption or variation in intensity of the jaundice, are biliary obstructions of malignant origin, while those cases occurring at times with mild degrees of temperature, with moderate variations in the depth of jaundice and variations in the acholic character of the stools are the ones to be suspected of being infectious in origin.

Deep jaundice as a complication of surgical operation is highly undesirable because of the tendency of deeply jaundiced patients to develop uncontrollable hemorrhage post-operatively. Operations upon such jaundiced patients should not be undertaken until bleeding and coagulation have been determined and an attempt made to restore them to within normal limits by the administration of calcium by mouth, rectum or intravenously. Normal bleeding time is 1½ to 4 minutes and normal coagulation time 8 to 11 minutes.

It has been our custom to give calcium lactate 50 grs., by mouth three times a day for 3 days before operation, and calcium chloride 5 c.c. of a 10% solution intravenously once a day for 3 days previous to operation until it is determined whether or not it is possible to restore the bleeding and coagulation time approximately to within normal limits.

The theory of the effect of calcium upon bleeding is based upon the assumption that unionized calcium so necessary for the production of fibrin is lacking in such cases, the theory of coagulation being thrombo-kinase plus prothrombin equals thrombin; thrombin plus fibrinogen (in the presence of calcium) equals fibrin. It is assumed that the administration of calcium intravenously or otherwise supplies the unionized calcium wanting in this condition. If, however, fibrinogen has been lost because of impaired liver function, there is no effect from calcium and benefit may then be obtained by blood transfusion.

It has been our experience that drops in coagulation and bleeding time to normal may be of but short duration, and it is desirable to undertake the contemplated surgical procedures promptly upon this drop and to accomplish relief of biliary back pressure adequately by the surgical measure undertaken.

The treatment of biliary passage disease is entirely surgical, now that our conception of so-called catarrhal jaundice is no longer that of an inflammatory oedema of the larger bile passages but an interstitial cholangitis. We do not believe that adequate drainage of the bile passage may be accomplished by the so-called duodenal drainage of Meltzer and Lyons, nor that medical measures in any way definitely affect the course of any of the biliary passage processes.

We further are of the opinion that since gallstones or cholecystitis are so constantly associated with infection of the entire gall bladder wall, together with hepatitis and liver infection, that any procedure short of removal of the gall bladder does not remove the possibility of a return of the process for which the original operation was done.

Since gall stones do not occur without gall bladder infection and since also they offer possibilities of attacks late in life, when patients are not well endowed with surgical resistance, since pancreatic infection from the gall bladder is ever a possibility, and since stone-containing gall bladders are more prone to malignancy, it is our opinion that there are no harmless gall stones and we advise removal even of those silent stones discovered in the course of a routine examination.

Adequate surgical treatment of either calculous or infectious biliary tract disease consists of removal of the gall bladder, thorough investigation of the common and hepatic ducts, and drainage of those ducts where infection is present or after the removal of stones.

The time of choice for gall bladder operation is between attacks, if possible, when the acute reaction has subsided and oedema and exudate, particularly about the junction of the cystic with the common and hepatic ducts and in the region of the cystic artery, are no longer present. The selection of such a time is usually possible, but in the presence of a progressively deepening jaundice one may be forced to accept unsatisfactory conditions before they become more unsatisfactory. Likewise in the presence of a gradually enlarging and infected gall bladder it becomes necessary to undertake cholecystectomy before the process goes on to one of gangrene, rupture, and possible peritonitis.

As to the operation itself, little need be said except that one should be absolutely certain that in the removal of the gall bladder the common and hepatic ducts are not injured. To insure such conditions it is, in our opinion, essential that the cystic artery be ligated separately, that the cystic duct be isolated and identified from its origin well down to its entrance into the common duct, and that both the common and the hepatic ducts be exposed and recognized.

There are three reasons why it is necessary that the cystic duct be isolated down to its entrance into the common duct: One, to make sure that it is the cystic duct; two, to demonstrate the size of the common duct; and three, because one of the causes of later stones in the common duct is the overlooking of a stone in the cystic duct just at the junction of the cystic duct with the common duct. The tie may thus be placed on the cystic duct just above the undiscovered stone and the stone later push its way into the common duct. We have repeatedly discovered small stones situated close to the junction of the common and cystic ducts where they might easily have been overlooked and have caused later trouble in the common duct.

Regarding the treatment of the cystic duct, we are firmly convinced that the older teaching that

the cystic duct should be tied close to the common to prevent ballooning out of the remnant of the cystic duct, is dangerous. We have more than once seen cases where the cystic duct had been tied so close to the common duct that a part of the wall of that structure was included in the tie, resulting in a stricture at the junction of the common and hepatic duct and requiring a plastic procedure upon the ducts to repair it. Strictures of the common and hepatic duct are highly undesirable complications, owing to the proneness of strictures to recur in this situation as elsewhere.

We have spoken of the necessity of exposing the common duct in order that the size of that structure might be ascertained.

Common duct stones are to be suspected when attacks of gall-stone colic are accompanied by jaundice, frequently of very slight intensity, with or following the attack of colic. They are to be particularly suspected when two or more attacks of gall-stone colic have been associated with jaundice and they are to be almost certainly diagnosed when to this chain of events may be added temperature and chill, with or without changes in the color of the stools.

We are led to associate dilatation of the common duct with common duct stone because we have so frequently found stones in the common duct with no history similar to that above spoken of, and with no symptoms whereby one might be particularly led to suspect the presence of stones in the common duct rather than in the gall bladder only. It is evident then, that positive history of common duct stone is of value, but the entire absence of such a history by no means indicates the absence of such a stone.

Observance of the size of a common duct is urged, therefore, since we have never removed a stone from a common duct which was normal in size, and have several times seen the common duct an inch in diameter in the presence of a long-standing stone in that duct; and while we have occasionally seen a large common duct in which we were unable to find a stone and in which there were no later symptoms indicating the presence of a stone, still we are certain that all surgeons will agree that all common ducts larger than normal should be explored, and from our experience we are led to believe that in a majority of such cases a stone or some other form of obstruction will be found.

In investigating the common duct for stone, one should not forget that frequently but a small part of the duct is visible between the cystic duct and the outer border of the duodenum, the greater part being behind the duodenum, and that adequate exposure and investigation of the common duct may frequently be accomplished only by mobilization and turning inward of the duodenum.

We have frequently been surprised by the smallness of stones causing obstruction when lodged at the ampulla of Vater, a fact which has led us to investigate that region with great care before assuming the absence of a stone in that location, particularly with evidence leading us to suspect such a condition.

In determining patency of the duct at the ampulla, we have made use of a small rubber catheter, passing it well down the duct until it should be in the duodenum. If sterile water then be injected into the catheter, it will return around the catheter if the eye of the catheter has not passed out of the duct into the duodenum. If, on the other hand, the catheter has passed into the duodenum, the water will not return but will pass readily into the duodenum. In such a case we have frequently introduced six to twelve ounces of water before withdrawing it, a procedure suggested by McArthur several years ago.

We have constantly drained, for long periods, all common ducts from which stones had been removed and likewise every common duct requiring an incision into the duct for exploration.

Frequently we have been able to explore a common duct through the stump of a cystic duct, and when such an exploration has been negative, provided the common duct has not been of unusual size, we have closed it by ligature of the stump of the cystic duct.

We always employ drainage following cholecystectomy and believe that the fewest post-operative complications and later digestive disturbances have been obtained where peritoneal flaps were so preserved that the stump of the cystic duct and the defect in the liver made by the removal of the gall bladder could be covered by them.

We have repeatedly seen gall bladders not removed at operations done for chronic cholecystitis because a gall bladder was found which on inspection did not appear sufficiently pathological to the surgeon operating. This we feel is unsound judgment, since it is not possible either by vision or palpation to determine whether or not a gall bladder is non-pathological. We have assumed that if the symptoms were sufficient to justify the probable diagnosis of cholecystitis and if the pre-operative examinations were sufficiently complete, even in the presence of a reasonably normal looking gall bladder it should be removed. This we consider the lesser of two evils, since if it is not removed, and the symptoms persist, how may one be sure that the symptoms are still not due to conditions in the gall bladder? This teaching, to be sound, however, requires that we repeat and stress that pre-operative investigation should be complete and the original symptoms for which the exploration is done be sufficiently tangible to justify it.

We have repeatedly, in the presence of justifiable symptoms, removed what appeared to be a normal gall bladder, only to find in it small precalculous, putty-like masses, or even fine sand-like accumulations of calculous material. In

dealing with gall bladder disease, we must remember that up to the immediate present, practically all of our standards of gall bladder and biliary tract diseases are those of end stage pathology, such as fully developed gall-stones and the thickened gall bladders of acute or chronic cholecystitis.

We must assume that there are earlier stages than these and that these earlier stages give rise to symptoms perhaps less tangible than the late ones, but still justifying removal or duct drainage when one is led to believe that they originate either in the gall bladder or bile passages.

We have spoken earlier in this paper of the wisdom of exploring the cases of progressive painless jaundice suspected as being of malignant origin and we wish again to urge this procedure, not only with the possibility of ascertaining that the obstruction is calculous in character and curable (as occurred in our experience) but with the possibility that an anastomosis may be made between the gall bladder and the duodenum or jejunum. Even though the obstruction be found to be one of malignant character, if such a cholecystenterostomy can be done it insures the unfortunate individual weeks or even months of life in comparative comfort, of relief from the inntolerable itching, and though the risk is great, as it is particularly in those cases with white glycerine-like material in the ducts, the bile having been absorbed out, these possible added comforts plus the almost certain knowledge as to the character of the obstruction more than justify it.

In this connection we have stated that such an exploration gives almost certain knowledge as to the cause of the obstruction. We say almost, because there are a few cases of cancer at the ampulla and in the head of the pancreas in which one may be in doubt, the process being small and localized, and one is not able to determine certainly whether it is malignant or calculous in character. In such a case we have often obtained information by the introduction of a slender pointed hypodermic needle into the mass. If it be calculus it will usually turn the point of the needle; if malignancy, the needle will be admitted readily to within the center of the mass.

Where, in spite of all procedures, doubt still exists, it is wiser to anastomose the gall bladder to the duodenum or jejunum, since if the common duct be opened for the removal of a stone and the obstruction be found to be due to malignancy, a permanent biliary fistula will result; while if the duct be not opened and the obstruction actually be due to stone, no great harm has been done, as the bile will drain satisfactorily through the gall bladder into the anastomosed intestine.

To sum up in conclusion:

The history of biliary tract disease may and frequently is very atypical in character.

Biliary tract disease should be diagnosible earlier than at the point where it is now generally diagnosed; that is, at the point of end stage pathology (gall stones and old cholecystitis).

Common duct stones often exist in the absence of distinguishing clinical features. Deep jaundice without pain and apparently due to malignant obstruction has twice been discovered to be due to silent stone and exploration and thorough investigation of the ampulla of Vater is indicated in these cases.

The recent methods of estimating bilirubin in the blood have been of positive value in following the course of jaundice where definite biliary backing up was present, so that obvious jaundice had occurred, but have been of little diagnostic value in the chronic inflammatory lesions and in the lesions where doubtful calculous duct disease existed.

We have little confidence in the Meltzer-Lyons method of duodenal drainage either as to diagnosis or treatment of biliary tract diseases.

The Graham method of visualizing the gall bladder by the administration of tetraiodophenolphthalein appears to possess great possibilities as an aid to diagnosis in gall bladder disease.

Positive X-Ray evidence has definite value—deductive or secondary X-Ray evidence is of but little value.

The surgical treatment of biliary tract disease necessitates such familiarity with operative procedures on these structures that the common and hepatic ducts may be thoroughly explored and that stones may be removed from the ampulla of Vater by transduodenal choledochotomy. The surgery of the gall bladder is relatively simple compared with that of the duct with the result that in the hands of individuals not experienced with the surgery of this region the ducts are often inadequately explored and treated at the time of operation and stones are left behind to cause later trouble and later operations in dense adhesions and other trying difficulties.

THE WASSERMANN TEST—XIX. SULPHARSPHENAMIN DERMATITIS

Report of a Case with Some Comments

CONTRIBUTIONS FROM THE EVANS MEMORIAL, No. 101. SERIES C23.
AND BOSTON UNIVERSITY SCHOOL OF MEDICINE

BY DAVID L. BELDING, M.D., AND JOSEPH GOLDMAN, M.D.

THE dermatitis which occasionally follows the administration of the arsphenamins is a matter of considerable practical import to the syphilologist and through its relation to the phenomena of drug allergy, it is of interest to those engaged in immunology, pharmacology, and therapeutics. Among the various arsphenamin preparations sulpharsphenamin seems to produce skin reactions most readily[1], [2], [3]. The following report describes a patient with an ex-

FIG. 1. Before treatment.

foliative dermatitis which resulted from intravenous treatment with sulpharsphenamin.

The family history of the patient, 36 years of age, is irrelevant. He was married in 1919. His wife and child are in good health and present no clinical or serologic symptoms of syphilis.

Previous History. The patient had a chancre twelve years ago for which he received treatment by mouth for one and one-half years. Except an indefinite cardiac condition, which was the reason for his failure to pass a civil service physical examination in 1911 and for his discharge from the army in 1917 because he was unable to stand the strain of long marches, no further symptoms were noted until April 1923 when the patient underwent a series of operations upon the nose and accessory sinuses. The operations afforded only partial relief. The patient then developed abscesses over the right zygoma and on the left cheek which were incised and drained. Cultures showed staphylococcus aureus.

The lesions not having healed under surgical treatment, the patient was transferred to the syphilitic clinic in September in spite of a negative blood Wassermann reaction. At that time he showed the following lesions: Just below the left eye was an oval ulceration 4.5 by 1.5 cm., sharply punched out, the lower edge undermined, with a surrounding area of erythema, 2 to 3 mm. in width. There was little induration and at the upper edge of the ulcer just below the inner canthus was some edema. The surface of the ulcer was covered with a yellow, purulent secretion. Below the right zygomatic ridge was an oval ulcer 10 by 5 cm. the upper half showing evidence of repair, the lower half punched out. It was a little indurated but not tender. On the posterior median part of the tongue was a deep, narrow fissure which showed but slight induration and little redness of the surrounding tissue. Otherwise the physical examination was essentially negative although the cardiac condition subsequently noted may have been overlooked.

Treatment. The patient received eight intravenous injections of sulpharsphenamin at three to four day intervals within a period of twenty-six days, a total of 4.5 grams. Apart from a slight choking sensation during administration on three occasions he suffered no discomfort. The lesions healed with remarkable rapidity. On the twelfth day, after three injections (1.8 grams) of sulpharsphenamin, the ulcerated lesions showed a marked change. On the fifteenth day they were considerably re-

FIG. 2. After treatment.

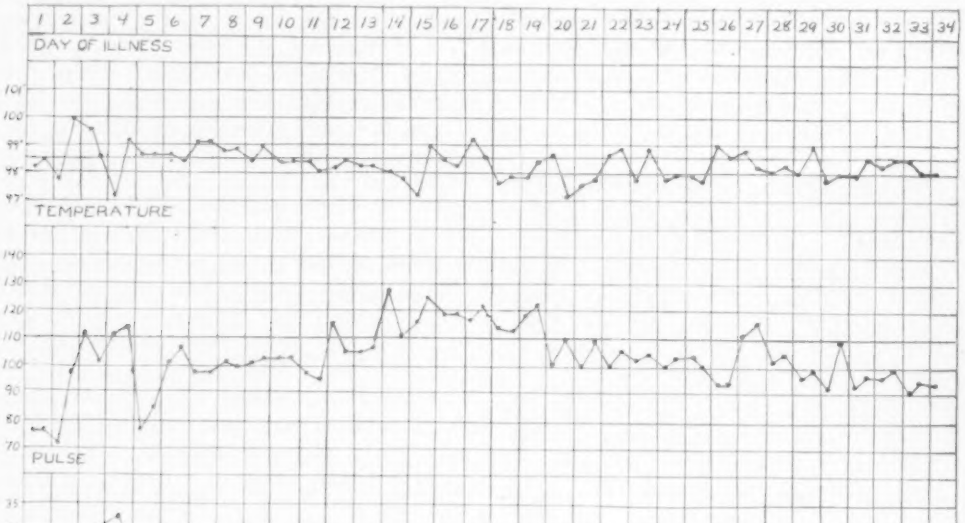
duced in size, the edges showed less redness, there was less pus in the discharge, and granulation was well under way. On the thirty-eighth day after the start of treatment there was an oval healed lesion beneath the left eye presenting a fissure 4 cm. long and a similar depression below the right zygomatic ridge. Several months later the patient showed only depressed scar formation at the site of the old ulcers.

Dermatitis. On the second day after the eighth injection the patient developed a rash, which appeared first on the back and arms. Treatment was at once discontinued. The skin eruption became progressively worse necessitating his removal to the hospital on the seventh day after its appearance.

On admission the patient showed an intense erythematovesicular rash extending from the scalp to the feet, the soles and palms alone being free. It was most marked on the face and neck. There was considerable edema of the face and ears and a slight swelling in other parts of the body so that the skin felt rather tight. On the trunk the erythema was mottled in character and on the extremities it was confluent and somewhat scarlatiniform. The rash faded on pressure. Minute reddish-brown vesicles of varying size were present all over the trunk and extremities. The patient complained of moderate pruritis and of burning and tingling sensations in the extremities. The face and neck showed many crusts, brownish and white, from which exuded a thin watery secretion.

The patient was put to bed, a mild lotion and ointment ordered, fluids forced, and the bowels kept open with saline purges. The crusts were removed by oil applications. Sodium thiosulphate was administered both orally and intravenously in one-half to one gram doses, but with no pronounced effect on the clinical condition.

On the twelfth day the inflammatory condition also became manifest in the mucous membrane of the upper respiratory tract. At this time the patient developed a dry cough, pain in the throat, and loss of voice due to edema of the vocal cords. Simultaneously, there was an increase in the heart rate (chart), the rhythm, however, being regular. The cardiac condition was thought to be the result of the general toxic effect. X-ray examination of the heart showed a dilated left auricle with increased density of the mediastinal shadow in the transverse diameter. Roentgenograms shortly before and after the dermatitis showed similar but only slightly abnormal shadows. Twenty months later Dr. William Reid detected a systolic murmur at the base and found clinical signs of an enlargement of the aorta and heart, although no symptoms of cardiac disability were present. Since there was no evidence of hypertension or valvular disease, he concluded that these findings strongly suggested a syphilitic background.



The condition of the patient at this time appeared critical. His body was covered with numerous crusted lesions from which oozed a sticky, serous fluid, his face was swollen, his throat sore, his voice hoarse, his heart palpitating, and his mind in an apprehensive state. This acute phase lasted from the twelfth to the twenty-second day. Then the patient gradually improved until his discharge one month after admission.

Laboratory Findings. Besides the presence of appreciable quantities of arsenic, the urine showed little of note—the slightest possible trace of albumin and a few leukocytes. The haemoglobin was 80 per cent. The white blood count on the fourth day after the appearance of

the rash was 11,600, but on the sixth it had risen to 23,000. The differential count showed about 18 per cent. of eosinophils (chart).

This case presents several points worthy of mention, such as the Wassermann reaction, the rapid clinical response, and the susceptibility to sulpharsphenamin.

Wassermann Reaction. The first two Wassermann tests were negative. As the patient did not give any history of syphilis at the time the sinus operations were performed, the disease was unsuspected. However, subsequent clinical evidence overruled the results of the laboratory tests.

By using a more delicate test with four times the customary amount of serum, a positive reaction was obtained on at least four occasions, while with the standard amount of serum for the ordinary test, the result was invariably negative. At a later date the Kahn precipitin test was doubtful. The amount of the Wassermann antibody in the blood of this patient was insufficient for detection by the standard test, yet in spite of the small quantity, it was definitely present. Undoubtedly, many serum-negative, clinically positive patients possess a definite but usually indetectable amount of syphilitic reagin. With such patients a more delicate technique in spite of an occasional error is justifiable.

Patients with extensive superficial gummatous ulcers infrequently give a negative Wassermann reaction. The strength of the Wassermann antibody in the average patient follows the curve of clinical syphilis, but in the individual it is subject to all manner of variation. Occasionally, a patient because of an insufficient amount of the Wassermann antibody may give a negative reaction. This antibody probably represents the reaction of the patient against the injurious activity of the treponema rather than furnishing a measure of the protective power of the body, since strong reactions are more frequently found in the involved clinical cases. If a reaction to injury, this patient with a feeble serologic response and clinical evidence of extensive superficial syphilitic involvement, which responds rapidly to treatment, presents an exception to the rule. Such a condition may be explained by a natural inability to produce the Wassermann antibody although it is possible that the reaction may not be the result of injury or that the syphilitic involvement may not be as extensive as clinical findings would indicate.

Response to Treatment. The rapid response of the patient to treatment was most striking particularly in view of the small amount of sulpharsphenamin (4.5 grams) which was administered. Photographs 1 and 2, which were taken before and after treatment, show the changes produced by sulpharsphenamin. Whether a similar improvement with other arsphenamin preparations would have resulted, it is impossible to determine. The rapidity with which the lesions healed is much greater than is usually manifest with the arsphenamins, but it may have been due to the individual response of the patient.

Most of the evidence in the literature points to the penetrating powers of sulpharsphenamin and its efficiency in chronic and neurosyphilis. Our observations indicate that it has no particular advantage over the other arsphenamins in early or in neurosyphilis. Investigations have not been extensive enough as yet to warrant definite statements as to its relative efficiency.

FIG. 3. Exfoliative dermatitis due to sulpharsphenamin. Note the marked edema.

Reaction to Sulpharsphenamin. Dermatitis may follow the administration of any arsenic compound ordinarily used in the treatment of syphilis. In forty-four adult patients intensively treated with sulpharsphenamin six developed a dermatitis similar to but less extensive than the one here described. In our experience arsphenamin and neoarsphenamin have never given as high a proportion of skin lesions as sulpharsphenamin.

The dermatitis may be mild and transitory or severe and persistent. The mild skin reactions take the form of an urticarial or vesicular eruption and appear shortly after a single administration of the drug. On the other hand, the severe form, which usually does not appear until after four to eight injections, ordinarily does not develop until from two to eleven days after the last treatment.

In severe cases the condition is not confined to the skin, but includes a general subcutaneous edema particularly marked on the face and extremities. The mucous membranes of the upper digestive and respiratory tracts are also involved. All of these patients showed an exfoliative dermatitis over the entire body except in one instance when it was confined to the legs, and all but one complained of paresthesia at the time of the eruption or later. One instance of edema of the face and feet without dermatitis was observed. The rate of administration rather than the total quantity of the drug

seems to be the important factor in the production of this condition. The affected patients received the sulpharsphenamin equivalent of 0.92 times the total and 1.18 times the weekly maximum dose of neoarsphenamin.

Fordyce, Rosen, and Myers[4] have shown that when the normal elimination of arsenic through the skin is interfered with, its deposition in the cutaneous layers is sufficient to produce irritation and consequent edema which prevents the functioning of the epidermis and the results in an exfoliative dermatitis. It would seem that this condition results when the tolerance of the patient to arsenic is reached and the body is unable to take care of the excess arsenic. Quantitative determinations of the arsenic in the urine of this patient showed 3 mgm. of arsenic trioxide per liter during the first week of the rash and 1 mgm. by the third week.

FIG. 4. Exfoliative dermatitis.

Another view as to the mechanism of the production of dermatitis with arsphenamin and its deritatives has gained considerable ground, viz., that of allergy. The fact that the patient developed the reaction only after several doses the blood picture, and the choking sensation during the administration of the drug, tend to substantiate this idea.

The hematopoietic cause of dermatitis championed by Betances[5] is worthy of note. Toxic damage of the liver and impairment of its detoxifying function may have a great influence on the causation of the symptoms. It has been suggested that injury to the suprarenals by arsenic is a factor in the production of altered metabolism. Yet one may conceive that the reaction is simply the result of the cumulative effect of arsenic when the individual's threshold of tolerance is relatively low and the rate of dosage high, and that the dermatitis arises from the irritation produced by the presence of excess arsenic in the skin and subcutaneous tissues.

Moore and Keidel[6] observed the following changes in the blood picture in arsphenamin dermatitis: leukopenia, decrease in the polymorphonuclear neutrophils, eosinophilia, increase in the large mononuclear or transitional cells, and the appearance of many fragile cells. Most writers on this subject have found leukopenia to be the usual occurrence, although Guy[7] and others report a leukocytosis. Our patient showed a slight leukocytosis. Latham[8] reports a fatal case in which the eosinophils attained over 40 per cent. and followed the total leukocyte curve during a transient improvement in the patient's condition; but during the last three days of life, they disappeared from the peripheral blood. The eosinophil count in our patient (chart) averaged between 15 and 20 per cent. although on the seventh day it reached a maximum of 30 per cent. Two months and twenty months after recovery the eosinophil count was normal.

SUMMARY

A severe exfoliative dermatitis is described in a patient with extensive superficial syphilitic lesions who showed a rapid clinical response to treatment with sulpharsphenamin. Sulpharsphenamin seems to give a higher per cent. of skin lesions than arsphenamin and neoarsphenamin. The patient showed extensive exfoliating skin lesions, marked edema of the subcutaneous tissues, edema of the vocal cords, a toxic heart condition, a mild peripheral neuritis, presence of arsenic in the urine, and a marked eosinophilia. In spite of a negative Wassermann reaction the presence of a small amount of syphilitic reagin was demonstrated by increasing the delicacy of the test.

The early skin reactions which develop immediately after one or two injections of sulpharsphenamin appear closely associated with anaphylactoid phenomena. The exfoliative dermatitis which usually occurs after several injections may be explained by the cumulative effect of the arsenic resulting from intensive treatment in a patient with low tolerance, although evidence indirectly suggests an anaphylactoid background.

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SUCCESS IN MEDICINE

An address delivered at the opening exercises at Boston University School of Medicine, Sept. 21, 1925

BY HENRY M. POLLOCK, M.D.

Ladies and Gentlemen:

Thanks to the spirit of self-sacrifice manifested by Dr. Alexander S. Begg, your Dean, and to the self-denial shown by a number of my other friends and associates, it becomes both my pleasure and my privilege to extend to you the hearty greeting of Boston University School of Medicine and to welcome you home.

Home has many definitions. Among them it is said to be that place "which, when you have to go, they have to take you in." If you were informed of the many, many applicants who apparently were possessed of the requisite educational attainments and who were refused admission to Boston University School of Medicine you would not regard this as a proper meaning. Home has also been called a place of refuge and rest. For one reason or another I am inclined to think that you will very soon begin to doubt the accuracy of this definition.

Home as I have employed the word is that place in which one lives with one's family—and it is our desire that each of you should feel that this is your home and that you are entitled to its shelter and to all its benefits and privileges and that you are a part of the large and ever growing and very happy family of Boston University School of Medicine.

Home is also defined as the abiding place of one's affections and I hope that each of you, ere you leave our home to enter upon your life work, will have added this phrase to our definition, and regardless of where you may reside or to what heights you may attain or how long may be your life, will continue to regard Boston University School of Medicine as your home and ever hold it and the members of its family in affectionate regard.

The *Journal of the American Medical Association*, August 22nd, 1925, in giving statistical information concerning medical education in the United States has this to say under the caption "Hints to Prospective Medical Students":

"The selection of a Medical School is a matter of extreme importance and should be considered with special care. The student who is contemplating the study of medicine, therefore, should note with care the character and the classification of the medical school in which he is planning to enroll and more particularly whether it is recognized by all State Boards. . . . . A careful review of the material published this week will be of greatest service to such students."

If you did as the *Journal* suggests and perused the matter contained in its present or former educational numbers, you would observe that 80 medical schools were available for your choice.

You would see that eight offered but two years of the course; that five were not recognized by the Licensing Boards of more than forty states (this because of their deficiencies in the essentials for teaching) and that three of the remaining 68 were so lacking in certain essentials as to be regarded as not meeting an acceptable minimum standard.

Whether you read and followed the instructions contained in this article or not is of no great moment, for you have been fortunate in matriculating in a class A medical school, which has achieved an excellent reputation. Its graduates are unusually successful in passing the examinations required to practice medicine in our own and in sister states.

In concluding an article on Boston University School of Medicine appearing in the BOSTON MEDICAL AND SURGICAL JOURNAL of September 15th, 1921, Dr. John P. Sutherland, then Dean of the School and now Dean Emeritus, remarked:

"The courage and high idealism of the founders of the school; the hopes and faithful struggles of their immediate successors; the freedom from prejudice plus an earnest desire to grow and keep abreast of the day which marked a later generation; the general independence and self-reliance which has marked the career of the school; and the final amalgamation with and complete adoption of the school, its ideals, traditions and ambitions by the University, makes this year of reorganization the beginning of its 49th year, an epoch of vital importance to the school, the effects of which may radiate in unending circles."

You have but to know Dr. Sutherland to appreciate how lofty have been these ideals held by the school and how greatly its ambitions were advanced during his twenty-five years of Deanship, and in addition the ambitions of Dr. Begg, to realize that these ideals will be maintained and that the circles of which Dr. Sutherland speaks will continue to radiate influences which will ever widen under his oversight and direction.

This then is the school of which you are now a part, a democratic school of high ideals and lofty purpose, of sufficient size to have a broadening influence upon you through your contact with your fellow students and not of such size as to prevent a most intimate and personal relationship with your professors and instructors.

A school whose buildings leave much to be desired, but whose laboratories and laboratory equipment surpass that of many schools far richer in endowments and buildings; a school fostering and encouraging research; a school through its hospital associations rich in clinical material of a kind so diversified as to give large opportunities to become proficient in the art of medicine; a school having a faculty exceptionally well qualified, thoroughly harmonious and ever ready and willing to guide and counsel you in your work and, to sum it all up, a school with Dr. Alexander S. Begg as its Dean.

In the *Boston Herald* of September 12th, 1925, Dr. Clarence Cook Little, the new President of the University of Michigan, is reported as saying that 85% of the students in colleges are a draw-back to the progress of the serious students. That number, said Dr. Little, is at college because it is the thing to do, every one of them should be barred.

At college you may have been one of this 85%, but now, for you, college days are gone and serious work has just begun, you are here to fit yourself to become a member of the Medical Profession. At the outset it is desirable that you should have clearly in mind what a profession is. In today's complex civilization there may be said to be six grand divisions of labor: industry, business, technological, scientific and artistic pursuits, and professional service. Theology, law and medicine are designated as the three learned professions. A profession is supposed to give service to meet the physical, mental, moral or spiritual needs of man.

Its members are bound by a code of ethics. They are not circumscribed by the number of hours they may devote to their daily work, or by a fixed hour for beginning and ending employment, or by rules limiting the amount of their daily production. They do not labor for so much an hour. Knowledge rather than stock in trade or physical strength forms their capital. Fundamentally the professional man is supposed to perform work which he enjoys doing for its own sake. It has been said that "the business man seeks to make money, the laboring man labors to make a living, and the professional man strives to make a life."

The medical profession is distinguished from all others by its beneficence. It dispenses its charity widely. It directs its best thought and energy to the lessening of human suffering, and does not hesitate to restrict its own future activity by an earnest effort to prevent every preventable disease. Indeed, prevention rather than cure has become its watch word.

Hear what Robert Louis Stevenson has said of the physician:

"There are men and classes of men that stand above the common herd, the soldier, the sailor and the shepherd not infrequently; the artist rarely, rarer still the clergyman; the physician almost as a rule. He is the flower (such as it is) of our civilization; and when that stage of man is done with and only to be marveled at in history, he will be thought to have shared as little as any in the defects of that period and most notably exhibited the virtues of the race. Generosity he has such as is possible to those who practice an art never to those who drive a trade; discretion tested by a hundred secrets; tact tried in a thousand embarrassments and what is more important Herculean cheerfulness and courage. So that he brings air and cheer into the sick room, and often enough, though not so often as he wishes, brings healing."

May each of you be this kind of a physician.

I am inclined to be very doubtful of the value of an introductory talk or lecture of this kind. I am sure that this doubt, if not shared by you when I began to talk, must have already arrived or at least be fast approaching.

In the lectures of this nature which I have heard, it is usual for the speaker to attempt to leave with his hearers some thought which he hopes may be of larger benefit. With this in mind it is my purpose to speak of success in medicine—how best it may be attained and when gained by what it may be measured.

Some twenty-five years ago a little book called the "Magic Story" was published—the original was purported to have been printed on parchment in the seventeenth or eighteenth century; brief as it was it was supposed to contain the great secret of success for all worldly undertakings—all that was necessary to obtain success, immediate and instantaneous, was to read the parchment or the book.

I, too, have a magic story to tell, for I have conceived the four factors which enter into the achievement of success by a student or an early practioner of medicine.

The first of them is *Work*. Sir William Osler, when addressing a student body at the University of Toronto in 1903 (I believe this was also an introductory lecture) imparted to his hearers "The Master Word in Medicine"—it was *work*.

If success is to be yours both in your student days and in your after life, work must become your "master word."

Truly there is no royal way to learning and truly there is no primrose path which leads to success. Hard, patient, persistent work must be your portion. Each day perform the work that is given you and thus take full advantage of the opportunities as they present themselves, not permitting it to so accumulate as to prove an almost insurmountable barrier. Have a system for your work, make a schedule of your hours, apportion them fairly; do not devote so much time to one study that you have none remaining for others of equal importance. Let

your interest lie only in the work of the day; leave that of the morrow to the morrow. Instruction in the present day medical school is divided into two main divisions demanding approxmately an equal number of hours, the science of medicine given in the first two years of your course and the art of medicine imparted in the two remaining years. Premedical studies group themselves under the former and intern years under the latter. Do not permit the glamor of the art to divert your attention from the science, for this is indeed the foundation of medicine. Make as your friends and companions those who are true workers—too close association with the idle and time-fritterer can but prove greatly to your disadvantage.

Always stand ready and willing and even anxious to do and do do just a little more than is given you to do.

"If any man ask you to go a mile walk with him twain." This is the "second mile of privilege."

Do all these things and you may count yourself among the blest, for blessed is that man who has found his work. Apply yourself faithfully to your daily tasks and you will soon find that you have journeyed well along the road leading to success.

The second factor I wish to bring to your attention is *Courage*. Hugh Walpole in his novel "Fortitude" has one of his characters say, "Tisn't life that matters, 'tis the courage you bring to it." In your student days and in your after life, hold constantly in mind that 'tisn't difficulty, or disappointment, or work or even failure, that really matters, 'tis the courage you bring to them. Adjustment to your new life and new studies may present certain difficulties, but meet them with courage. You survived your college days, the work in a professional school differs from that of college largely only in degree.

Do not become discouraged because you are constantly being out-stripped by the brilliancy of a fellow student, or because of your inability to acquire knowledge as readily as he. Remember that brilliancy is not synonymous with success and that knowledge is useless unless intelligently applied.

From time to time a certain period has been termed "the golden age"; for the Greeks and Romans the golden age endured during the reign of Saturn; for England during that of Elizabeth; for France during that of Louis XIV; German literature had its golden age between Klopstock and Goethe and Italian art from the Life of Leonardo De Vinci to Michelangelo. The present is the golden age in medicine. During the past fifty years the advance in medical science has been so wonderful and its effect on human happiness so far reaching that never has there been like achievement within the memory of man. If during your student days energy flags, doubt comes or courage is lost, take down Garrison or some other history of medicine. As you read, bear in mind that nearly all these wonderful accomplishments were wrought by men and women who had less preparation than have you, and knowing this gain courage to go on with renewed and more determined effort. Should perchance, seeming failure come, now or afterward, do not lose courage, but remember *final failure* is impossible to one who is yet alive.

Also learn to wait with courage for the realization of your dreams and ambitions, for the woman who may some day be yours, for the practice that comes so slowly. "My boy," said the old and experienced philosopher, "youth has many things to learn, but one of the most important is never let another man beat you at waiting." There is really no ordeal of courage more terrible than passive waiting. Most of us can be brave with something to do, but to be brave for months and months with nothing to do.—Ah! that is the highest test of courage.

But whether working or waiting, pin firmly to your breast the "Red Badge of Courage," for when you are thus equipped success may not long escape.

The third factor is *Knowledge*. In this I include wisdom, which is not only knowledge but the capacity to make use of it. You have come from material distances, and are here devoting four years of your life that you may gain a knowledge of disease;—what it is, how it shows itself, how it may be cured, and how it may be best prevented. Don't fail to get what you are here for. Don't try to evaluate the various subjects in which you receive instruction and attempt to acquire a knowledge of only those which may appear to you to be of particular benefit. Much time and study has been devoted to the preparation of a well-balanced curriculum by those who are much better aware of your needs than are you. Each of the studies you are required to pursue are essential and are closely inter-related. You can't become a successful surgeon unless you have a thorough knowledge of anatomy and physiology, or a competent physician without knowing pharmacology and chemistry or how to prevent disease without full information in bacteriology and immunology. You will fail utterly to understand morbid anatomy if you lack knowledge in histology, and throughout your course you will find a similar dependence of one subject upon another.

Do not expect that shortcomings will be undetected or overlooked by your professor or instructor. You may deservedly have had the reputation of being the best *guesser* in your college, but you can't guess your way through a medical school, or by a state board of examiners in medicine, or at the bedside, when, on your knowledge and wisdom often depends the issue of life and death.

Don't grasp the idea that laboratory knowl-

edge, the X-Ray, the electro-cardiograph, or any other piece of apparatus that has been or will be invented can supplant former methods of diagnosis and that therefore you can neglect this part of your instruction. Laboratories and the apparatus contained therein must be regarded simply as aids. Very useful aids it is true, but only aids nevertheless. Often, and usually, their reports cannot be rightly interpreted without the aid of careful clinical findings. We haven't accepted the Abrams theory, and do not believe that disease can be diagnosed and treated merely by the laboratory findings and without seeing the patient. Specimens may occasionally become mixed, and lack of knowledge of even the sex of your patient, may cause you to commit a grievous and an embarrassing error.

If you graduate, and you will graduate if you remember and practice what I say today, don't fail to recall that medicine is advancing, and ever advancing, and that new knowledge must be constantly gained if you are to keep abreast with the progress made. As soon as eligible, join your medical society; never neglect to present a paper when invited to do so; take part in the discussions, and also learn to be a good listener. Become a constant reader of current medical literature. In short, be ever an earnest seeker after knowledge, remembering:

"The clouds may drop down titles and estates;
Wealth may seek us but wisdom must be sought;
Sought before all; (but how unlike all else
We seek on earth) 'tis never sought in vain."

My fourth factor in success is *Personality*. It is a common practice to ascribe the success of this or that physician to his personality, but those who thus associate personality with success usually fail to appreciate all that personality contains. The medical student is prone to fall into the error of thinking that by copying the bedside manner of his most successful or most admired professor or instructor, or his tone of voice, dress, actions or perhaps even his mild profanity, he is acquiring this professor's or instructor's personality.

At times, bending over my work at my desk, someone enters my office whom I have failed to observe. However, his manner of entry, mode of speech, and tone of voice, lead me to conclude that it is one of my many chiefs of service. After answering his question in the extremely deferential tone of voice, which, on these occasions, I always assume, and assuring him that his slightest wish is my highest law, as I always do, it is really disconcerting, on glancing up, to find that I have been addressing a third or fourth year medical student. Now true personality goes far deeper than this. I cannot view with you personality from its varied aspects, the biological, the physiological, the psychological, the sociological and the ethical, but I can give you the admirable summary of personality as written by Dr. Joseph Coffin in the concluding pages of his book "Personality in the Making." Dr. Coffin says, "It is not sufficient to enumerate the physical characteristics or to catalogue the superficial traits of behavior. Study of his mental activities will enable us to dscover whether or not he is a problem-solver; into his dynamo room, to see how much power and initiative he can generate. On the outside we must discover whether he is rooted in the rich soil of a good heritage, and whether the windows of his mind are open to the thought, the appreciation, the will of the people that make up the world in which he lives, moves and has his being.

"We must find whether he has drunk in the spirit of the institutions which stand close to him; whether or not he possesses the essence of spiritual insight and power which are the product of real education.

"We must look to see whether or not he manifests that fine sensitivity to the welfare of others and that susceptibility to the invitations of his own conscience to become his ideal self which mark the moralized person.

"As the final test of personality we must ascertain first the degree of efficiency with which he administers his own interests; whether he has learned to work and to utilize the fruits of his labor for his own personal upbuilding; second whether he has dedicated his efficiency to the service of society and pays in the coin of his labor for the nurture he has received at its hands. Whether he has come out on that high plateau of vision from which he can see something of the meaning of the world-order and whether his own system of plans telescopes with the larger system of society and the divine order."

I have quoted Dr. Coffin thus at length that you might have a clear conception of what personality really is and of what composed, that you might see that your successful professor's personality would not be lacking if he had no flower in his button hole, if his hair were parted in the middle, if he walked with a limp or were two inches shorter. I also quoted Dr. Coffin that you might not spend your time in a vain endeavor to acquire your instructor's personality, but employ yourself profitably in developing your own.

Attempt to mould and fashion your personality in a manner to be for your own greatest good, suppressing those attributes which you may discover cannot fail to hamper you and developing to their fullest extent those which promise to be helpful. Engage in self-analysis and self-examination and with Dr. Coffin's words before you see how you measure up. Dr. Coffin goes on to say, "If he measures up to these searching tests, a man has fulfilled the conditions of personality. He has earned the respect, admiration and honor of the communi-

ty, in token of which society bestows on him its best emoluments in money, friends and position. But in addition to this recognition by society he has earned the high self-respect and contentment which are the subjective symbols of true happiness."

Thus ends my "magic story." The secret of success is now yours. It has been said "to travel hopefully is better than to arrive," but I say, travel *hopefully*, FOR WITH *work*, *courage*, *knoweldge* and *personality* as your guide-posts, you MUST arrive.

And now in regard to the measure to be employed in computing success. A physician is given a far different unit of measure to determine success than is the business man, or the mechanic or the laborer. If he has been dominated by the spirit of commercialism he has missed all that is really worth while; he may measure his worldly goods with the usual measures used in trade, but lacking success, as we understand success, he has no need of our measure.

If, however, he has been true to the traditions and ideals of the medical profession, if he has been a *true* physician he may appraise his suc- Examine this and you will find that it is scored with alternate bands of joy of work and joy of service and finely subdivided by markings of generous deeds. With this measure and this measure only may the amount of success achieved in the practice of medicine be computed.

Occasionally we hear of large fees paid to the internist, the specialist or the surgeon. Within the past few days I heard of one such fee and hoping that sometime in your medical career you may obtain a like fee I wish to tell you of it; how it came about and how it was paid.

Some fifteen years ago a woman was admitted to our hospital. She was so desperately sick and apparently so very poor that at the time of her admission the question of a professional fee was not raised. In an extremely critical condition she was placed upon the house service of one of our surgeons. An operation was performed and after days of doubt improvement began and finally our patient was discharged from the hospital fully recovered.

Each and every night since that time with a heart filled with thankfulness that woman has gone down on her knees and asked God to bless the surgeon who was His instrument in restoring her to health. Fifteen years of gratitude, fifteen years of thankfulness, fifteen years of earnest petition to God—a really worth while fee. "A heritage it seems to me well worth a life to hold in fee." What is success in medicine? Can you measure it?

THE TREATMENT OF EARLY PARONYCHIA

BY WILLIAM PEARCE COUES, M.D., F.A.C.S.

It is cause for congratulation that the surgical treatment of septic conditions of the hand and fingers has improved markedly in the last ten years. The improvement has been due to two causes. First, better education of the laity in the prompt treatment of apparently insignificant trauma in these regions, and, secondly, largely through the work of Kanavel, an understanding of the great importance of proper surgery in these conditions and classification of the different types of infection, the treatment of which varies so much, so that the proper treatment of one type of infection might be disastrous in a different one.

Acute paronychia—pus around the nail-bed, though ordinarily regarded as one of the more trivial types of infection of the hand, leads often times to weeks of disability in the worker, economic loss, and occasionally, in neglected cases, or those treated injudiciously, to serious and sometimes crippling results. Early intelligent treatment may undoubtedly save, at times, some weeks of disability and the necessity of the radical operation of Kanavel or some modification of it. To those familiar with this type of surgery, nothing new is offered in the following remarks; but it is hoped that the suggestions made as to early treatment may be of value to those seeing these cases in their general practice.

The object of early treatment is, of course, to arrest the paronychia before pus is infiltrated between the superficial nail and the matrix to such an extent that a formal operation is necessary for the cure of the condition. The surgical "don'ts" at this stage are most important and are often neglected. A lateral incision of the finger over the seat of greatest redness and tenderness often resorted to will not cure the condition except perhaps only in the case of a pure sub-epithelial abscess on the side of the finger, and not a true paronycha. The surgeon is at times tempted to incise laterally and often is rewarded by finding a few drops of pus. Nevertheless, the inflammatory process under the nail still keeps on and sooner or later a removal of the nail must be done to effect a cure. So-called "wet dressings" are, of course, a fallacy unless definite instructions are given to the patient or his family as to keeping them wet at home. A hot moist dressing applied in the office or clinic will be dry in a few hours and will cause irritation. The usual findings the next day after this sort of dressing is applied are a hot, red, throbbing finger with dry gauze

adherent to it and, if lateral incision has been made, the tiny wick used is found forced out upon the dressing.—A full-blown paronychia is in progress, which will not yield to anything but radical cure by proper surgery. Early paronychia can, however, with proper treatment, be arrested and cure be brought about in a few days' time in many cases. The method of procedure which has given satisfactory results in a number of early cases is as follows:

Beginning at the edge of the nail where the infiltration and redness are most marked, a very fine sterile probe or the blunt end of a large surgical needle is pushed gently under the cuticle and worked down around the border of the nail, lifting the cuticle gently up. Often a few drops of pus will be liberated by this procedure. Next, a very fine narrow ribbon of sterile rubber is carefully pressed in place in this small pocket, care being taken that the rubber tissue ribbon does not tamp on this place. The end of the finger is smeared with sterile vaseline and a small square of rubber tissue, with a small hole in the center, is placed over the end of the finger, this tending to macerate and keep the skin soft. Moist gauze is then applied and a short finger splint. The patient is instructed to keep the dressing wet with warm salt solution at home, dripping it through the outer dresssing every hour or so.

In favorable cases, at the next visit the finger is found soft, the redness and tenderness gone or nearly gone, and repetition of the treatment for from two to three days may result in a cure without the necessity of the removal of the nail. Protection of the finger for a few days longer is all that is necessary after this. Such treatment is always worthy of trial in the early cases, but naturally experience tells us very quickly which ones are likely to respond to this conservative method. It has been shown that it is unwise to proceed to radical operation in early cases before such simple measures are tried for a few days. Hot baths for the hand and arm at the office or clinic visit enhance the beneficial effects of this treatment.

In elderly people, with repeated paronychias, it is always wise to have a careful urine examination made with especial reference to the presence of sugar. The surgeon should always have in mind in atypical cases that rare and fatal condition known as melanoma of the nail-bed, a number of cases of which have been reported in recent surgical literature.

PARANOIA. A TRAUMATIC INDUSTRIAL ACCIDENT CASE COMPLICATED BY A MENTAL DERANGEMENT

BY HERBERT J. CRONIN, M.D.

PARANOIA is a mental disease characterized by a group of delusions systematized about one general theme. There can be sanity in relation to all other aspects of life. In the following case, a prior paranoid disposition was converted into paranoia by a severe industrial accident followed by protracted litigation.

Great difficulty had been experienced by the Massachusetts Industrial Accident Board in handling this case until it was demonstrated that the symptoms were due to mental and not to surgical conditions.

A paranoid disposition may be possessed by many normal persons, altho it may be the precursor of the paranoid conditions found in the psychoses such as schizophrenia, (dementia precox) and paranoia. The characteristics of this paranoid disposition so frequently seen in industry are ideas in the individuals that their superior is antagonistic to them, that they are persecuted, that their work is watched and that their fellow employees are conspiring against them. They are suspicious, dissatisfied and troublesome.

This paranoid disposition may be merely a character trait, producing an odd personality or it may be the antecedent of early symptoms of a psychosis; in particular, litigation may transform a paranoid disposition into paranoia, an incurable disease.

Early recognition of a paranoid disposition in traumatic cases is very important, followed by the establishment of mental hygiene and psychotherapeutics; the period of disability should be shortened by an early return to work and particularly, there should be an avoidance of litigation. When the patient shows signs of irresponsibility or of homicidal ideas, commitment to a state hospital is the proper treatment, for, as the condition progresses, the delusional system is enlarged with the resulting incorporation of innocent persons.

Homicide may occur when the patient is so annoyed that he attacks his delusional persecutors believing that he is acting in self-defense. Reason cannot assist the patient out of his delusions nor can suggestion, psycho-analysis, or any other form of psychotherapeutics bring about a cure. Suitable work in a safe environment alone will be of assistance.

Case, J. S. Irish laborer, age 55, single. While operating a calender machine, his hand was caught between its steel rolls, crushing off the fourth and fifth fingers with their metacarpals and extensively traumatizing the hand. After six months of daily treatment, the best result that could be produced was a scarred, mutilated hand with perhaps 15% function. The man was a powerful, able-bodied laborer with the average

mental equipment of his co-workers. Eight months after the accident, ideas of persecution were first expressed.

His general physical examination, except for the hand, was negative. As far as he could remember, he was never sick, had had no operations, and had worked steadily in many rubber factories up to the time of this accident. The laboratory findings of the blood and urine were negative. He denied venereal disease.

The history of his grandparents and parents was unimportant. He has three brothers and four sisters living and apparently well. He knew nothing about his birth, dentition, time of walking or talking. He attended school in Ireland until twelve years of age; then, he came to this country and went to work. He has worked mostly in various rubber boot and shoe shops. He is a Roman Catholic and attended church regularly. He reads nothing but the daily papers; he attended socialistic lectures and tried to govern his life with a philosophy of his own concerning right and wrong. He does not use drugs, is a moderate smoker, and altho he drank whisky freely before prohibition, is afraid of it now and rarely drinks. He has had no sexual intercourse for several years and admits no perversions.

His neurological examination was negative except for irregularity of the pupils and a questionable speech disorder producing a monotonous flow of speech. His range of information about his work was good and he had an ordinary knowledge of general affairs of the nation. He is unfriendly with his family who lives in Connecticut because he suspected them of cheating him from part of his mother's estate.

Eight months after his accident, when litigation had commenced, he showed the first signs of delusions of reference which have gradually increased to the present nearly three years after the accident.

"The Bolsheviki society, the red hand, and the anarchist society are responsible for taking off my hand," he declared. "They have been following me everywhere and they placed a man to work beside me. He was their agent and he fixed the machine so that my hand was caught. These societies know where I am all the time, watch me on the street, try to pan handle me and they are trying to kill me. The crucifix alone prevents them from injuring me. (The patient has a crucifix pinned to his vest above his heart.) I want $5000.00 for the loss of my hand, I will never sign on the red line and I will sue them in every court of the land. I will go to President Coolidge in Washington and place my case before him. I would be justified in killing these men but my religion prevents me; still, I can kill in self-defense and that is not murder. I will never return to work in this factory for they will surely kill me next time. I will take no job from them. Let them pay me for my hand."

Recent and past memory is intact. He is orientated as to time and place. He keeps his appointments accurately and is reliable in small tasks. He discusses the current news logically and unemotionally until there is some association with his accident; then, he becomes excited, sometimes manic and relates the story of his accident and his delusions. His mood is passive, almost stoical. He has no hallucinations nor illusions.

In summing up, the patient had an early paranoid disposition, disclosed by his difficulties with his family and suspicions about his fellow empoyees. Now, he has delusions of reference, systematized about his accident, but he is lucid in most other matters. His homicidal desires are at present restrained by his religion. He is deteriorating gradually in personal appearance. Custodial care in a state hospital with assignment to some work that he can do with one hand such as farming appears to be the only solution.

MEDICAL PROGRESS

RECENT PROGRESS IN PHYSIOLOGY

BY PERCY G. STILES, PH.D.

Assistant Professor of Physiology in Harvard University

A RAPID survey of accessible titles in this field creates the impression that studies of the human subject are on the increase. It has seemed desirable to select for the present review certain articles of this class. Their bearing on medical science is evident.

MUSCLE FUEL

An old discussion regarding the nature of the material burned in active muscle has lately been renewed with much intensity. We have long been convinced that the protein of which the tissue is so largely composed is not extensively sacrificed in connection with its ordinary performances. It has been generally assumed that either carbohydrate or fat may be oxidized to evolve the energy of contraction. This statement has usually been coupled with the opinion that carbohydrate is preferred when available. In respect to the use of fat a difference of opinion has developed: some have maintained that direct oxidation is possible, others have asserted that fat must be transformed to carbohydrate before it can become a source of energy.

The datum known as the Respiratory Quotient is an indicator of the type of metabolism. This figure (the ratio of the carbon dioxid discharged to the oxygen consumed) rises as carbohydrate becomes prominent and sinks when fat is more largely involved in the decomposition processes which are taking place. Much attention has accordingly been paid to it in the attempt to determine the nature of the muscular process. But the physiologists of Cambridge, England, have made it clear that the experimental conditions require to be carefully controlled. A great deal of earlier investigation appears to have been inconclusive. The difficulty is, briefly, this: when exercise is taken an accumulation of lactic acid is probable and in proportion to its increase carbon dioxid is expelled from the blood. This carbon dioxid is not respiratory in its immediate origin.

During the recovery of the system after exercise lactic acid is removed. The blood then retains carbon dioxid furnished by the respiratory processes of the tissues and does not transfer it at once to the air in the lungs. It will be seen that the quotient tends to be falsified both during and after activity. In the first case it is unduly elevated because carbon dioxid previously present in the blood is being driven off; in the after-period it is depressed because of the failure of a part of the carbon dioxid produced in the current metabolism to make its escape. But Furusawa[1] demonstrates that a correct quotient may be obtained if the gaseous exchange is measured for the combined periods of exercise and recovery.

The ratio computed varies with the duration of activity and with the diet. With well-fed subjects who presumably begin with a good stock of glycogen it keeps close to the carbohydrate value (unity) even when the exercise consists in running in place for as long as 20 minutes. This exertion can be shown to involve the oxidation of glycogen to an amount of about 300 grams. If the exercise is still continued the quotient falls indicating the utilization of fat. Furusawa prepared for certain trials by giving the volunteers rations as rich in fat as they could well tolerate. They reported sensations of inertia and fatigue. When the subjects thus fed worked in the laboratory it was still found that the respiratory quotient for short spurts was that of carbohydrate metabolism. However, the depression of the ratio denoting the shift to fat as fuel came sooner than under normal conditions: after 9 minutes instead of 20.

These experiments are thus seen to support the favorite view according to which carbohydrate is preferred to fat as muscle ammunition. They do not settle the question whether fat can be burned as such in the muscle or whether some preliminary transformation is necessary. Hill[2] has lately inclined to the view that fat must be made over into carbohydrate or some closely related compound before it can serve its most important purpose. The occurrence of such a conversion followed directly by oxidation cannot be proved or disproved by studying respiratory quotients. There is a growing impression that isolated muscle cannot use fat as a source of contractile power. Its store of carbohydrate sets a rigid limit to its activity. If this belief proves to be well founded it will be of great interest to find out what factors give the muscle in situ this superior command of its fuels.

In connection with this discussion it is well to refer to the parallel which seems to have been established between the level of the blood-sugar and neuromuscular capacity. A study of Marathon runners made last year[3] showed that extreme fatigue, bordering on collapse, was commonly associated with a deficiency of sugar in the circulation. Consistently with this it has now been observed[4] that a liberal allowance of carbohydrates before the day of the race and supplementary feeding with glucose during its course distinctly add to the staying power of the runner. Blood samples from subjects who were sustained in this way showed that the lowering of the all-important sugar was successfully combated.

THE YALE CREW

Henderson and Haggard[5] have published a report of extraordinary interest in reference to the energy output of oarsmen. Rowing is acknowledged to be the form of exercise which permits the maximum delivery of power. The crew furnishing the data to be summarized was an exceptional one. Undefeated in America, it led all others in the Olympic contests on the Seine. Over the shorter stretches (1.25 miles and the nearly equivalent 2000 meters of the French course) the shell was driven at a rate slightly exceeding 12 miles per hour. An ingenious method was devised for estimating the work done in maintaining this speed.

The boat with its eight oarsmen and coxswain was towed by a launch at the same rate, the crew remaining passive. A spring balance interposed between the two craft showed that a tension of 110 pounds had to be exerted to draw the shell and its load steadily onward with this velocity. The distance covered in a minute was 1092 feet. From these figures it appears that physical "work" was done to an amount represented by the product of the two, namely 120,120 foot-pounds per minute. The traditional horse-power is 33,000 foot-pounds work in a minute. The crew, then, developed nearly four horse-power for a period of five minutes and the individuals contributed about half a horse-power each.

It is shown that such an output of energy by a man weighing 180 pounds would suffice, in theory, to take him up eight stories or 80 vertical feet in a building for every minute of continued effort. This is an impressive achievement. It becomes even more so when it is considered

that some of the oarsman's strength is unavoidably misapplied so far as the propulsion of the shell is concerned. The return stroke hinders rather than helps progress. The blades of the oars do not move in the ideal straight line but in arcs of circles. The authors judge that the misdirected energy must be at least 25 per cent of that which is calculated as above.

Making use of the physical constant known as the Mechanical Equivalent of Heat one discovers that a man laboring with such intensity performs work equal to about 6 calories per minute. Since the efficiency of the body, regarded as an engine, is not much above 20 per cent it follows that the total energy evolved must be as much as 25 or even 30 calories. This is an increase of something like 20-fold over the resting metabolism. Henderson and Haggard estimate that the maximum quantity of oxygen which the circulation can supply to the muscles of the athlete is in the vicinity of 4 liters a minute. The metabolism of the oarsmen was in excess of this supply; according to a well recognized principle they went into debt for oxygen and had to collect large amounts of it in the after-period of their trials. It is necessary always to remember that oxygen is not required for the contraction of muscles but for the renewal of their working capacity.

This investigation was not limited to the crew in the boat. The studies which have been outlined above were supplemented by others made upon the individuals. They were set to work at rowing machines so standardized as to indicate the work performed. In a series of experiments they breathed into the calibrated tanks or bags while rowing. The volume and composition of the expired air being determined it was possible to find the oxygen consumption and the discharge of carbon dioxid. From these data a calculation of the metabolism could be made by the methods of indirect calorimetry. The results thus obtained in the laboratory and those secured on the river were in surprisingly close agreement.

THE OUTPUT OF THE HEART

The reviewer paid some attention to this subject two years ago and referred to Henderson's conclusion that the stroke-volume or delivery per beat is but little subject to change under conditions which can be called normal[6]. Since then the work of this writer with Haggard has led him to alter his belief[7]. This he has announced with a scientific candor which is worthy of all praise. His present attitude toward the question is the result of a new method for measuring the rate of the human circulation.

In the past the common procedure has been to attempt a comparison between arterial and venous blood. If the quantity of oxygen in each is accurately known it should be possible to calculate how much blood is circulating to carry to the tissues the volume of this gas which they are consuming. The figure for arterial blood is reliable. But the gaseous content of venous blood is by no means uniform in different places. Hence there has been an element of uncertainty in all computations of this kind. Henderson and Haggard have discarded the old technique for one which is quite unlike it.

They have shown that when a foreign gas is inhaled the amount borne away in the blood may be taken as a basis for estimating the volume of the circulation. The gas selected must conform to certain standards: it must not combine chemically with the blood and its solubility should be rather low. The choice has fallen on ethyl iodide. This gas in the concentrations used is harmless to man and is so rapidly decomposed that none returns in the venous blood. Very accurate analytical methods are available for its quantitative determination. The investigators are able to ascertain how much is taken from the lungs in a given time by the blood and in view of the tension and solubility it becomes possible to find how much blood must have been available as a solvent. Dividing the minute volume of blood by the pulse rate gives the output of the heart per beat.

It is proposed to speak of a "stroke index," by which is meant the number of cubic centimeters of blood expelled by either ventricle for a kilogram of body-weight. An average value for a subject seated is about 1.5. This, it will be noted, corresponds to a stroke-volume of 105 ccm for a man weighing 70 Kg. In the course of vigorous exercise the index is said to reach 3.5. This means a delivery of blood in excess of 200 ccm at a beat and is an unexpectedly high figure. The minute output for such a heart and a rate of 150 would evidently be 30 liters. This is about four times the output during rest. It is a coincidence helpful to the memory that the resting figures for the minute volumes of the circulation and of the respired air are approximately equal: say 7 liters. During exercise the increase of the respiration is perhaps twice as great as that of the blood-flow.

METABOLISM OF ORIENTALS

A paper by MacLeod, Crofts and Benedict[8] is filled with interesting suggestions. Relatively little has been done with the comparative physiology of races. It seems to be established that body temperatures are practically uniform for all the peoples of the earth. But a general impression has prevailed that the Orientals have highly economical organizations. They are assumed to subsist on rations of lower calorific value than would support Europeans under similar conditions of climate and activity. If this is correct a measurement of the metabolism under various conditions should confirm it.

The report which is to be summarized has to do with the basal metabolism of nine women stu-

dents, natives of China and Japan but attending American colleges. They had resided in this country from 15 to 52 months. They had adopted the diet and the routine of their associates and probably kept pace with them in all respects. Physical examinations of these subjects showed them to be normal according to accepted standards though characterized by rather slow hearts and slightly low blood pressure. Carefully tested sets of apparatus were used to determine the metabolic rate, the volunteers fasting and relaxed as required for such trials. The results were expressed in calories per square meter of computed body-surface.

The value commonly regarded as normal for the hourly heat production per square meter of surface in young women is 37 calories. The average for these Orientals is about 10 per cent less. This supports the belief that the bodily processes of Asiatics are less intense than those of western races. Yet the difference is not so great as might have been expected. It becomes nearly negligible in view of the opinion advanced by the authors that the traditional standard for women has been set too high. They would cut it down by 5 per cent. If this revision is accepted the apparent deficiency in the Oriental metabolism is reduced by one half and seems scarcely deserving of emphasis.

CYANOSIS

Attention may well be called to an observation made by Goldschmidt and Light[9] in the course of a series or experiments upon the circulation in man. When the hand is allowed to hang down for a short time the fact is familiar that its color will become bluish. The appearance encourages the conclusion that the circulation has been so retarded that an unusual proportion of the oxygen has been taken from the blood. It is therefore a surprise to learn that the blood returning in the large veins of the dependent arm contains as much oxygen as it would with the limb in a horizontal position.

The investigators referred to have shown much insight in suggesting an explanation of the altered color. It is, briefly, as follows: The color of the skin is due in part to the nature of the blood in the capillaries and in part to the condition of that which is traversing the microscopic veins. Capillary blood, being intermediate between arterial and venous, is naturally brighter than the latter. Now when the hand is hanging down the force of gravity adds to the pressure in its vessels of all classes. The addition does not greatly affect the capillaries because the initial tension there was considerable. It is much more effective upon the veins in which the pressure was previously quite low. Hence, the total result of the dependent position is a relative increase in the venous fraction of the blood present in the part. The possibility of an apparent cyanosis when there is no oxygen deficiency is obviously something to bear in mind.

TOBACCO

Mendenhall[10] has now published in full the results of a study of which preliminary notes have been available for some time. It deals with the influence of smoking upon the sensory threshold, the ability to recognize weak induction shocks applied to the fingers. The indications are curious but clean cut. Smoking is found to increase sensibility when the initial state is one of depression and to diminish it when the original condition is one of hyperexcitability. In other words it tends to establish a mean between the possible extremes.

The striking thing about this finding is that it is in substantial agreement with the subjective judgment of the smoker. He will probably state that his cigarette helps him to arouse himself when he is feeling torpid but quiets him when he is uncomfortably irritable. At first this seems too good to be scientifically true. But Mendenhall discerningly points out that rest and sleep have just this action on the nervous system. They also tone up or tone down according to the direction of the previous departure from the norm. They make for a return to the optimum. This work is likely to be widely quoted in defense of smoking. In Mendenhall's opinion these definite effects are due to nicotin and are not obtained by smoking cubebs or other tobacco substitutes.

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EXAMINATION OF FOOD HANDLERS

THE city of Buffalo Department of Health reports that the examination of three thousand and thirty-four food handlers over a period of six months showed one hundred and thirty-four cases of syphilis, a proportion of a fraction over one case out of each twenty-five examined. This condition may be very much like that in other cities. The possibilities of infection are not conducive to enjoyment of eating in public places although it is probable that some of these people may not be in active stages of the disease.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY
RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.
F. M. PAINTER, M.D., ASSISTANT EDITOR

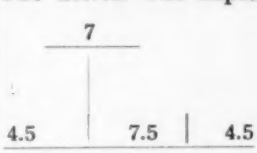
CASE 11451

MEDICAL DEPARTMENT

A Swedish-American schoolgirl of sixteen was admitted May 27 through the Emergency Ward complaining of dyspnea of four weeks' duration. She was too ill for a complete past history to be obtained. Her mother was dead and her father had deserted the family. She and a younger sister lived with a grandfather who was old and unable to work. She had influenza during an epidemic seven years before admission.

A year before admission she noticed a little swelling of the feet. She could, however, jump rope longer than any of the other girls, and at school had sixty steps to climb, yet was always well until five months before admission, when she began to have a little dyspnea, at first slight, but increasing. Four weeks before admission she noticed swelling in the feet and the right arm, which grew rapidly worse, involving the right arm, the legs and the abdomen. Three weeks before admission she was ordered to bed by a physician and had remained there, sitting upright without support, however. For three weeks she had taken ten to fifteen drops of digitalis three times a day. She became markedly dyspneic and orthopneic and had a rapid heart rate and rather severe pain in the pulmonic area and also in the axilla upon moving the right arm. She had slight unproductive cough, especially on changing position. The amount of urine was decreased.

Examination showed a girl with intense cyanosis, dyspnea and orthopnea, marked edema, and the mitral facies. The skin was dry, especially the left side. There was pallor of the face and hands except for highly flushed cheeks. The lips were cyanotic. The sclerae were very slightly icteric. The chest expansion was less on the right. There were dilated veins over the right shoulder and chest and rapid venous pulsation in the neck. The apex impulse of the heart was seen and felt in the fifth space in the axillary line. The percussion measurements were as shown in the diagram.



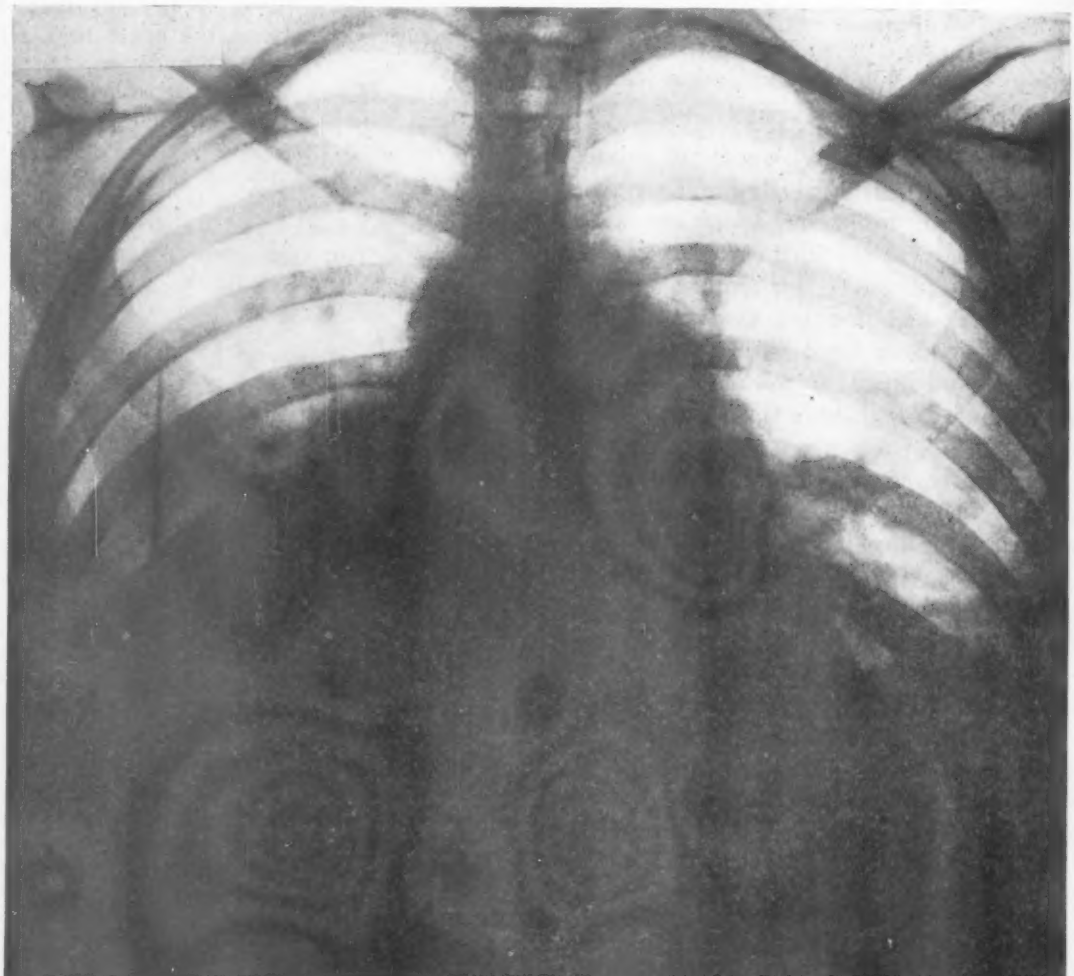
The action was rapid and regular, the sounds of fair quality, not distinct. There was a questionable mitral thrill. The blood pressure was 118/90. There were systolic and diastolic murmurs at the apex and along the left sternum. A to-and-fro rub was heard in the second space about four cm. to the left of the midsternal line, apparently present with respiration rather than with the heart beat. The rub obscured the heart sounds in the pulmonic area. There was no Broadbent. There were signs consistent with much fluid in the right chest and less pronounced signs at the left base, with bronchovesicular breathing above. The abdomen was edematous, with dullness in the flanks and fluid wave. A tender liver was palpable down to the level of the umbilicus in the right flank. There was an umbilical hernia. The legs showed generalized edema, more on the right. There was marked edema of the right hand and arm up to the deltoid insertion; also of the sacrum and the skin of the abdomen, chest and back. The left arm was normal. No knee-jerks or ankle-jerks were elicited. The pupils were normal. There was tenderness in the right axilla, with enlarged glands.

The temperature rose from 96.8° at entrance to 103.4° June 2, continuing elevated until June 6, then gradually dropping to 99.3° June 10. The pulse was 100 to 143 in spite of fairly large doses of digitalis, 37.5 grains in two weeks. There was a terminal drop to 65. The respirations were 24 to 47. The amount of urine was 12 to 38 ounces when recorded. The specific gravity was 1.024 to 1.012. The urine was bile stained at five of seven examinations and showed the slightest possible trace to a slight trace of albumin at all, bile at five. The sediment showed red blood corpuscles at four examinations, rare to 5-10 per high power field, 4-20 leucocytes per high power field at six. The hemoglobin was 70 per cent., the leucocyte count 28,500 to 14,800, the polynuclears 91 to 88 per cent., the reds 4,240,000 to 4,740,000, with moderate achromia. No endothelial phagocytes were seen on two examinations.

The day after admission a tap in the right chest was done with the withdrawal of 900 c.c. of straw colored fluid. The specific gravity was 1.012, 62 leucocytes, 900 red blood corpuscles, culture negative. A smear showed 98 per cent. epithelial cells, 2 per cent. lymphocytes. Next day the respirations were much improved. There was no pulsation in the right neck, but marked pulsation on the left. May 31 the edema was almost gone from the right arm. The jaundice was more marked. The left lobe of the liver was much enlarged and tender. The left chest now showed signs of fluid. The patient was rational again. There was a cord-

like palpable mass in the right neck. June 3 the cyanosis was increasing. There was a diffuse purpura over the chest and trunk and an ecchymotic area on the left upper arm. That day an abdominal tap gave 1300 c.c. of yellow bile stained fluid, specific gravity 1.008, no clot, 1200 red cells, 2,500 leucocytes, 80 per cent. lymphocytes, 16 per cent. polymorphonuclears, 4 per cent. undifferentiated. The non-protein nitrogen as 32 mgm. X-ray showed the cardiac shadow distinctly increased in size both to the right and the left, and the supracardiac shadow definitely increased in width. The outline of the diaphragm was visible on the right. The costophrenic angle appeared clear. The outline of the diaphragm on the left was rather indistinct. There was also some haziness in the region of the left base.

The patient failed gradually. She had a troublesome bedsore, with slough. June 10 she died.



X-ray shows the cardiac shadow distinctly increased in size both to the right and the left, and the supracardiac shadow definitely increased in width. The outline of the diaphragm is visible on the right. The costophrenic angle appears clear. The outline of the diaphragm on the left is rather indistinct. There is also some haziness in the region of the left base.

Discussion

BY DR. RICHARD C. CABOT

NOTES ON THE HISTORY

1. What is dyspnea of four weeks' duration likely to be—before we know anything else? Of course heart disease with passive congestion comes to mind first. It might be tuberculosis. Dyspnea however is not the chief complaint of most consumptives. This is too long a duration for pneumonia. We do not get emphysema at this age. We might find asthma, but that would be more than likely to be periodic. It might be uremic dyspnea from kidney trouble. It might be a pressure dyspnea from aneurism or from Hodgkin's disease in the chest, the commonest mediastinal tumor. Of these things of course the heart is the commonest and the kidney the next commonest.

2. Edema of the feet links up with the dyspnea.

3. A queer thing here is that the swelling should be of one arm and not the other. We often see in patients in bed swelling of one arm from their lying so much on one side,—gravitation dropsy. But I remember very few cases in which a person going about complains of swelling of one arm. Thrombosis is the commonest cause, thrombosis of a vein ordinarily, not an artery.

4. The rest of the account goes perfectly well with a heart or kidney trouble.

5. Here we have the good old dosage of digitalis, perfectly harmless, almost perfectly useless, which has persisted even up to this time.

6. By the "pulmonic area" I suppose they mean the left upper front.

7. As we read on we get more things that sound like local pressure and less like heart. In addition to the swelling of one arm we have pain. Pain is not an ordinary symptom of heart trouble, especially at sixteen, because angina pectoris is unknown at that time. And on the whole our heart cases are free from pain. So the presence of this localized pain on the same side as the swelling makes me wonder more and more whether there is not some aneurism or tumor.

8. It does not sound like a heart cough. It sounds much more like a pressure cough.

I think it is always well to sum up what we expect before coming to the physical examination. I expect to find some local obstructive disease in the chest, although I think heart and kidney disease are still possible.

NOTES ON THE PHYSICAL EXAMINATION

1. Would anyone like to say what the "mitral facies" is? I do not feel that there is any such thing, but I know what they mean. It is supposed to be the combination of sallowness (with or without anemia) and cyanosis. I do not think there is much to it myself. Generally they put down "mitral facies" after they have examined the patient and found the disease. It is very hard to get a man to put down this diagnosis before he knows that something is wrong in the mitral.

2. The pulsation in the neck has no special importance.

3. The dilated veins point very definitely to obstruction, probably tumor in the chest.

4. We say that the transverse diameter of the heart must be less than half the total diameter of the chest. An internal transverse diameter of thirty-two cm. in a girl of sixteen would be extraordinary.

5. "Mitral thrill" is a bad term. They should say presystolic if that is what they mean, and I think it is. There is no such thing as a mitral thrill. They might mean a thrill in the mitral area, systolic or presystolic.

6. In the blood pressure the chief point is the small pulse pressure, showing that there is very little pushing power behind the blood wave.

7. They are trying to make up their minds whether there is pericarditis or pleuritis, and on the whole they incline to think it is pleurisy rather than pericarditis.

8. Broadbent's sign is a retraction of the interspace in the left back, a systolic retraction supposed to be due to a pull from a pericardium adherent to the chest and to the heart, so that as the heart contracts it pulls in the chest wall. It is a very unreliable sign.

9. Edema in the right leg is surprising. Failure to elicit the knee-jerks and ankle-jerks may have had something to do with the edema or with tenderness.

10. Enlarged glands again sound like tumor, although she seems to have a heart lesion too. I do not see how we can get away from a cardiac or pericardial lesion. But the swelling of the arm, the dilated veins, the pain, sound as if we had a tumor in the chest.

11. Of course blood in the urine does not mean much unless we have a catheter specimen, and we are not so told.

12. The polynuclears were high all the time. There must be someone in the hospital who is particularly interested now in endothelial phagocytes. Ordinarily we should not put that into an examination. We do not expect to record their presence or absence.

* * * *

What can we do to clear up this case? Supposing we are attending the case, what is the next thing to be done?

A PHYSICIAN: X-ray.

DR. CABOT: Yes; but aside from X-ray, which of course we should have?

A PHYSICIAN: A blood culture.

DR. CABOT: Yes, that is good. But can we investigate that right chest in any way?

A PHYSICIAN: Tap it.

DR. CABOT: Yes. It seems to me that is the thing I should do, and I should have more hope of getting light there than from blood culture. I do not doubt that that was done.

13. They did not get blood from the tap. That is the main thing. They got a little in the sediment, but no more than might be accounted for by the tap itself. So this fluid does not help us. It is consistent with tumor, it is also consistent with dropsy, though it is a little high in gravity for dropsy.

14. The whole liver was probably tender from passive congestion.

15. The cord-like mass in the neck sounds like a thrombosed vessel.

16. In the X-ray report it is rather surprising that the outline of the diaphragm was visible on the right. I did not think it would be. They must have got all the fluid out and no

more accumulated. They have now some fluid on the left apparently.

17. The patient was not square in bed. The appearance in the plates is distorted. I do not know whether it is taken from in front or behind,—I should suppose from behind. The chief thing that I see is that neither costophrenic angle is clear. It looks as if there were fluid in both bases together with an enormous heart and a prominence in the aortic region. I should like to see a plate of it without distortion.

DR. RICHARDSON: They usually show a prominence there with arteriosclerosis, and a great point has been made of it. This person is sixteen.

DR. CABOT: Yes. We certainly cannot call it tuberculosis; no tuberculosis is suggested. All I can say is a big heart, congestion of both lungs, and something which I am not sure about but which I guess is a normal aorta. It might be a tumor.

DR. RICHARDSON: There seems to be abnormal shadow here.

DR. CABOT: That is all liver, I think. I do not think there is anything wrong with it. (Second plate.) I take it this is the dome of the liver, where they said the costophrenic angle was clear. I can make out nothing here that I could call tumor. I see nothing but a big heart, perhaps with pericarditis.

A PHYSICIAN: The enlargement of the heart seems more marked on the right side. It goes far over in the right chest.

DR. CABOT: Yes, I think it does. It is the kind of enlargement that is sometimes seen in pericarditis. I do not feel sure that it is all heart. The third plate was taken the same day and shows essentially the same thing.

DR. RICHARDSON: I don't think I have ever seen a plate that makes quite such a triangle of the heart shadow.

DR. CABOT: It is hard to believe that that is all heart, that there is not some pericardial fluid in addition. I think there is, and we have had, of course, a suggestion of pericarditis in the friction rub.

DIFFERENTIAL DIAGNOSIS

I think this case sums itself up pretty well. Let us go over it again. We have a young girl with heart symptoms and with heart murmurs apparently, and at first with swelling of one arm, with dilated veins on that side and some pain. But that disappears, and then there appears on the right side of the neck something that looks like a thrombosed vessel. We have leucocytosis and fever and a questionable thrill at the apex. We have something in the X-ray that looks like fluid in the pericardium in addition to an enlarged heart. I do not see that we have any blood cultures. But we have icterus and purpuric spots over the upper chest.

A PHYSICIAN: Will passive congestion alone account for the icterus?

DR. CABOT: Yes, we can account for it by passive congestion alone. We do not need to though in this case. There is another cause for icterus that I think of in this case, and a more probable one.

A PHYSICIAN: Malignant endocarditis.

DR. CABOT: Yes. That seems to me the obvious diagnosis. If it is not that I do not know what it is. Malignant endocarditis, by which we mean usually a recurrent endocarditis, chronic first, then acute,—a hard endocarditis, then a soft friable mass on top of it,—will account for her old heart symptoms and dyspnea, for the fever and leucocytosis, for the purpura by embolism, for the swelling of the arm by embolism, thrombosis, and for this thing in the neck. It will account for the jaundice as a septic jaundice, because of course malignant endocarditis is essentially septicemia with a local station for distributing sepsis from the heart valves. We have dropsy because the heart is doing poorly. We have fever from the sepsis. Have we a pericarditis? I am inclined to think we have. It goes perfectly well with the diagnosis, although we often have pericarditis without endocarditis and endocarditis without pericarditis. But they do come together.

If it is not pericarditis it might be hydropericardium, though I have never seen a heart shadow enlarged as much as this seems to be from dropsy. I am inclined to think that there is pericardial inflammatory fluid. All that they tell us points to the mitral valve. The mitral is the valve for a woman to have trouble with. The mitral is the female valve, the aortic the male valve. By that I mean that troubles with the aortic valve are predominantly male. Syphilitic aortitis, malignant endocarditis, aortic stenosis, rheumatic disease on the aortic are all male diagnoses. This is a young girl; hence we should naturally suppose, without any other evidence, that she would have a mitral lesion, if any. What little they tell us of the heart points to the mitral valve. But it is queer that she did not have arrhythmia.

MISS PAINTER: The action is recorded as normal at entrance, and nothing more is given in the later notes.

A PHYSICIAN: What does the diastolic murmur indicate?

DR. CABOT: The word diastolic of course includes presystolic. The presystolic period is part of diastole. The confusing element is that we apparently have a pericarditis, with pericarditis we may hear any and all murmurs and find nothing inside the heart. I have seen a pericarditis with a thrombosis of the vessels leading to one arm—I do not now remember which—like this case, without any endocarditis. I think we have to consider the possibility of this

being pericarditis alone with no endocarditis whatever. That would account for all the facts as I see it except the purpura on the chest. Pericarditis does not account for it because purpura is ordinarily an embolic lesion. Pericarditis does however go along with thrombosis causing edema of the arm, I do not know why.

So I think it is malignant endocarditis on the mitral, possibly on the aortic. The tricuspid is much less often affected. I believe there is an old healed process—as well as a recurrent process—beneath the soft septic process. It is surprising that she did not have more anemia. She did have a little. I think there should be the thrombotic closure of large veins leading to the right arm and up the neck. So far as I see that means the innominate vein. Whether it has got as far as the cava I do not know. It is possible. I believe there is acute pericarditis. I believe if there have been emboli thrown into the skin and into the vessels of one arm they probably have been thrown into the spleen and kidneys too, so I will prophesy infarcts of the spleen and kidneys. And except for general passive congestion I have nothing more to say.

I have committed myself as fully as I can. I am now going to read what Dr. Paul D. White says. He saw the case on the 6th of June, and he says: "The presenting signs and symptoms at present are of marked congestive failure—general anasarca. Pericarditis—mediastinopericarditis—probably as much a factor in the production of the congestion as the myocardial condition. Probably rheumatic mitral disease is present although similar murmurs may be caused by cardiac dilatation with adhesive pericarditis. Symptomatic therapy—paracentesis, diuresis, morphia. Craves more fluid, which I should give her in spite of the edema. Prognosis appears very grave."

Dr. White and I took care together in France during the war of one case that showed exactly this picture. He is thinking back as I am to that case. We both thought there was endocardial trouble and there was not any. That is, he does not say there is any acute endocarditis, apparently does not think so. I do not know how he accounts for the purpura on the chest. He thinks, as I do, that there is old mitral disease and that there is pericarditis, only he thinks that that is probably adhesive.

We always try to get out of the X-ray people a definite diagnosis of adhesive pericarditis,—is it or isn't it? I have never yet had a case where they helped us. In this interpretation they do not say a word about adherent pericarditis. If we find it I shall say again the X-ray did not help us. We cannot make this diagnosis of chronic pericarditis clinically. If the roentgenologist can do it he is the man. But he has not said anything about it here; yet Dr. White says chronic pericarditis.

DR. RICHARDSON: What was the temperature?

DR. CABOT: The temperature was high. Part of the time there was fever. It was normal at entrance, went to 103.4° and stayed up there. The chart shows quite a temperature. It came down towards death, and the pulse was running between 110 and 130, but on the whole dropping like the respiration and the temperature.

A PHYSICIAN: Is the size of the liver unusual for passive congestion?

DR. CABOT: No, just what we should expect.

X-RAY INTERPRETATION

The changes at the left base suggest some fluid in the left pleural cavity. No definite evidence of fluid in the right chest.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Rheumatic heart disease, probably acute endocarditis.
Congestive failure.

DR. RICHARD C. CABOT'S DIAGNOSIS

Chronic and acute endocarditis of the mitral valve, possibly of the aortic.
Thrombosis of the innominate vein.
Acute pericarditis.
Infarcts of the spleen and kidneys.
Chronic passive congestion.
Hypertrophy and dilatation of the heart.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

Chronic endocarditis of the mitral and aortic valves.

2. *Secondary or terminal lesions*

Chronic adhesive pericarditis.
Hypertrophy and dilatation of the heart.
Mural thrombi, right auricular appendix.
Embolic thrombosis of small branches of the pulmonary artery with infarcts of the lungs.
Chronic passive congestion, general.
Hydrothorax.
Ascites.
Anasarca.
Icterus.
Decubitus.

3. *Historical landmarks*

Slight chronic pleuritis.
Old infarcts of the spleen.

DR. RICHARDSON: We were not permitted to examine the head. There was frank icterus.—yellow discoloration of the sclerae and of the skin. The right lower extremity was swollen and pitted on pressure. The left leg and foot were swollen and pitted. In the region of the right elbow there was some swelling and slight

pitting. In the sacral region, decubitus.

The subcutaneous tissues were wet. The breasts were negative except that on section the tissue was edematous. Microscopic examination added nothing further to that.

In the peritoneal cavity was 1500 c.c. of thin somewhat bile-stained fluid. The appendix was negative. The gastro-intestinal tract showed well marked chronic passive congestion,—velvety, oozing, brownish-red mucosa. The mesenteric and retroperitoneal glands were negative. The liver was to eight cm. below the border, well down.

The diaphragm was at the fifth rib on the right, at the fifth interspace on the left, a little low.

The right pleural cavity contained 1500 c.c. of thin brownish clear fluid, the left 2000 c.c.,—marked hydrothorax, greatest in extent on the left. There were only a few slight pleural adhesions at each apex.

There was no mediastinitis. The trachea and bronchi contained much frothy fluid and bloody mucus, indicating chronic passive congestion of the lungs. The bronchial glands were slightly enlarged, brownish-red and juicy, typical of passive congestion.

The lungs showed no areas of consolidation. The apices were negative although there were a few adhesions. The lower lobes were somewhat collapsed from the fluid,—compression atelectasis. In the left lower lobe there were three frank infarcts, two in the region of the lower border, 7 by 1½ cm. These were very large infarcts. They rested just beneath the pleura and extended into the lung tissue. In the right lower lobe there were two infarcts in the region of the lower border. Small branches of the pulmonary artery leading to these were occluded by thrombotic masses. From this then we expect to find something in the right side of the heart.

The layers of the pericardium were bound together in several places by old firm membranous adhesions. These were practically on the anterior aspect, a little on the lateral, and behind there was a collection of fluid,—so that there were both adhesions and fluid, the fluid in small amount,—a moderate amount of adhesive pericarditis manifesting itself on the anterior and lateral portions of the heart, and a small collection of fluid, the condition all chronic.

The heart weighed 450 grams. For a girl of sixteen that is marked hypertrophy. There was a good myocardium, five mm. on the right (that is thick), ten mm. on the left,—nothing remarkable one way or the other. The columnae carneae were well marked. The left ventricle showed considerable dilatation and there was moderate dilatation of the auricle. The auricular wall was thickened. On the right side there was much dilatation generally. The thickened auricular wall indicates some trouble with the mitral valve. The mitral valve circumference according to the rule was eight cm. It is difficult to measure valves when there is anything the matter with them. We can only get a general idea. The valve ordinarily would be ten cm. This was two cm. short,—some stenosis. The free margin of the anterior cusp showed much irregular fibrous thickening, five mm. The width of the posterior cusp was shortened by fibrosis. The process on the valve was all chronic.

The aortic valve was five and a half cm. There is nothing to say about that one way or another. It is good enough. The cusps however along the free margins showed a narrow band of granular fibrous roughening—a slight amount of chronic endocarditis of the aortic cusps. The other valves were frankly negative.

The left auricular appendix was negative, but in the right were several frank adhering mural thrombotic masses, the largest 1½ cm. by 7 mm. by 5 mm.—quite a distinct thrombotic mass in the right auricular appendix. Of course bits washed off into the pulmonary artery branches, occluding them and causing the infarcts.

The aorta and great branches and the circulatory apparatus generally except as mentioned were frankly negative.

The liver weighed 1690 grams, large, (normally 1200-2400,) and showed typical nutmeg markings, chronic passive congestion.

The gall-bladder, bile-ducts, pancreas, duct of Wirsung were negative. The bile was rather thick. The spleen weighed 190 grams and showed dark purplish brown-red elastic tissue,—chronic passive congestion. In two or three places there were small old infarcts. The kidneys showed chronic passive congestion.

A typical picture then, anatomically, of chronic endocarditis of the mitral and aortic valves, on the aortic valve of course very slight in amount.

DR. CABOT: Was there any purpura visible when you examined the body?

DR. RICHARDSON: No.

DR. CABOT: It is very queer that it should have all disappeared. I banked on it a great deal, and it tended to mislead us.

A PHYSICIAN: Was there any thrombosis of the brachial vessels?

DR. RICHARDSON: I did not lay open the brachials.

DR. MAURICE FREMONT-SMITH: Why should the lower lobes be involved by infarcts—any reason?

DR. RICHARDSON: No.

DR. M. FREMONT-SMITH: Do they usually occur in the lower lobes?

DR. RICHARDSON: I think on the whole they are more apt to be in the middle or lower lobes, although sometimes we see them in the upper

lobe. But as a rule it seems as though they followed gravity.

DR. M. FREMONT-SMITH: Are the vessels down there larger?

DR. RICHARDSON: I have never noted any great difference in the size.

DR. CARTY: This is a poor plate. The first thing that we notice in this plate is the fact that there is very definite increase in the total transverse diameter of the heart. We cannot get so accurate an idea of the size of the heart as we could with a plate taken at seven feet, but comparing it with the chest it does appear to be enlarged. There is also considerable clouding of the lower lung field. The costophrenic angle is not visible on this side; in fact it is rather difficult to make out the outline of the diaphragm. I think all we could say from this plate is that there was a cardiac enlargement and some obscurity at the base which might be secondary to the cardiac condition.

DR. CABOT: They refer in their note to pericarditis.

DR. CARTY: It is very difficult though in these portable chests to be sure of the exact size of the heart, there is so much distortion where the tube is close down to the patient. Then too in the diagnosis of pericarditis the fluoroscopic note is of extreme importance. We should have the pulsation of the heart, the change in the cardiac outline when the patient is in the upright and recumbent position. There might be fluid there, but I do not believe we could say positively from this plate that there is.

DR. CABOT: Did you notice any jaundice in this patient?

DR. RICHARDSON: Yes, there was distinct jaundice.

DR. CABOT: The things that influenced me most strongly toward the acute endocarditis were the jaundice, the purpura, and the thrill. The purpura apparently disappeared. I wish I were sure that it ever was there. If it was I do not know now how it is to be accounted for.

A PHYSICIAN: How would you account for the septic features of this case?

DR. CABOT: I think they have to be accounted for by the thrombi. We have come to recognize here that fever can be due to thrombi in the absence of any focus of sepsis discoverable after death,—thrombi inside the heart and outside the heart. You have nothing to explain the right arm that was swollen?

DR. RICHARDSON: No. The edema seemed to be quite variable. I do not know why it should have been in one extremity and not in the other or more in one lower extremity than in the other.

DR. CABOT: You did not see any dilated veins?

DR. RICHARDSON: No.

DR. CABOT: I do not know what we are going to do with those. Then there was this cord in the neck. But what strikes me is that none of these things fooled Dr. White, and I want to know why. I want to know on what he based his perfectly correct diagnosis of adherent pericarditis. He does not give the grounds, although he gives the diagnosis in his admirably clear way. I think he had some more evidence than we had.

NOTE BY DR. PAUL D. WHITE

The following are the reasons for my diagnosis of adhesive pericarditis.

(1) The early age at which heart failure began, fifteen years, one year before entrance to the hospital. There was not sufficient valvular disease or evidence of acute infection to account for such cardiac disability. Also auricular fibrillation was absent and so such a disturbance of rhythm could not be blamed for the failure.

(2) At the time of examination the heart was found very large, too large to be explained by the moderate degree of mitral valve deformity present. In such a case pericarditis, either adhesive or with effusion, should be suspected.

(3) It seemed evident that there was something more than mere congestive failure to account for all the signs of edema. There apparently had been a mechanical obstruction, and pericardial adhesions can produce such obstruction.

(4) I do not recall noting any purpura particularly.

Thus although there was no absolute proof clinically of adhesive pericarditis it seemed likely that it was present.

CASE 11452

CHILDREN'S MEDICAL DEPARTMENT

A nine-months-old boy was sent from the Emergency Ward May 15. The chief complaints were loss of weight and paralysis. His mother had had one miscarriage. A brother and a sister were living and well. The child was normally delivered at full term and weighed nine pounds at birth. He was breast fed for three weeks, then given milk, water and dextrimaltose. At six months he was well nourished, weighing thirteen pounds.

When he was three months old the wind blew his carriage over, throwing him out. He was found lying on his face. The right knee was slightly red. A week later his right foot swelled somewhat and was purplish. This swelling had not entirely cleared up. At three months he had diarrhea for three weeks. At six months it was found that touching or bending the knee caused severe pain. At six months he held up his head. A month before admission the right leg was found to be limp. During the past three weeks he had lost weight rapidly, during one week losing a pound and two ounces. For twelve

days he had been holding his head extended. Six days before admission and at present he had fever. During the past four days he had had one or two attacks in which he seemed to suffer severe pain, screwing his face up, rolling his eyes, stiffening out and shaking all over. Since these attacks his arms had been spastic.

Examination showed a poorly nourished, pale child presenting a striking picture with his head greatly retracted, his back curved backward, his arms and legs held rigid and his fists tightly clenched. When turned on his back his body rested on the back of the head and the buttocks. The fontanel bulged. The pupils alternately dilated and contracted. They were equal but did not react to light. The eyes deviated to the left. There was occasional jerky nystagmus. The neck was rigid. The heart and lungs were negative. There were some small masses, probably fecal, in the left lower quadrant. The arms and the left leg were held rigid. The right leg was flaccid. He could however move the toes. The hands were clenched tightly, the foot rigid, not in the carpopedal spasm seen in tetany. There was no Chvostek. The lips and tongue were dry and the skin very dry and inelastic.

The temperature was 101.2° to 105.4°, the pulse 161 to 230, the respiration 40 to 72. The urine is not recorded. The blood showed 8,800 leucocytes, 73 per cent. polynuclears, hemoglobin 70 per cent., 7,430,000 reds. May 15 a lumbar puncture gave 5 c.c. of clear fluid under normal pressure, 62 cells, 50 per cent. lymphocytes. May 16 another puncture gave 20 c.c. of clear fluid under increased pressure, 68 cells, 50 per cent. lymphocytes, 50 per cent. polynuclears, (some of the cells could not be identified accurately,) sugar negative, protein strongly positive, globulin positive.

Orders: May 15 karo 10 per cent. solution ℥ viii every four hours, chloral hydrate gr. iv every four hours p. r. n. for convulsions, 10 per cent. glucose solution ℥ ii by rectum every two hours. May 16 calcium chlorid gr. x every four hours.

The day of admission 85 c.c. of 10 per cent. glucose was given intrasinusly and 25 c.c. of salt solution intraperitoneally. Next day the same dose of salt solution was repeated. The baby improved somewhat, became less stiff and attempted to cry a little. Right facial paralysis was now noticed. May 17 he died.

Discussion

BY DR. JOSEPH GARLAND

It is apparent from the record that this child was normal until the accident at three months of age, and for three months more he continued developing in a fairly normal fashion, although underweight at six months. The diarrhea at three months of age was probably one of the ordinary incidents of infancy; I do not attach any significance to it as far as his present illness is concerned. It is natural to attempt to establish some relationship between the accident to his knee at three months of age and his present illness, since the swelling of the right foot had continued up to the present time, and at six months of age touching or bending the knee caused pain; also the apparent paralysis of this leg noted a month before admission shows a progressive lesion.

Physical examination showing the child in the position of opisthotonos naturally suggests some lesion of the central nervous system. The fact that he has had a fever for a week makes this presumably infectious in origin. May is a season of the year when tetany is most prevalent, but there are certain points in the examination that are not typical of tetany; these are the bulging of the fontanel, the pupillary changes, the deviation of the eyes, the nystagmus and the rigidity of the neck. We may also note that carpopedal spasm is absent, as is the Chvostek sign. Moreover in progressing further in the record we find that the spinal fluid is pathological. This is not the case in tetany. Tetany I think can be excluded in establishing a diagnosis. A fluid under pressure, with only a moderate number of cells, may be found with poliomyelitis, encephalitis, brain tumor or tuberculous meningitis.

There was obviously some anhydremia, as shown by the condition of the skin, and we have further evidence of this by the fact that glucose solution and salt solution were given by mouth, by rectum, intraperitoneally and intrasinusly. It is possible that the temperature may have been due entirely to this loss of tissue fluid. The differential count of the cells in the spinal fluid, which are equally divided between lymphocytes and polynuclears, although not entirely typical of any of the conditions noted, is nevertheless strongly against an acute pyogenic meningitis. The negative sugar test is rather suggestive of a meningitis than of poliomyelitis or encephalitis. The positive protein test may be found in almost any condition. Although it is not stated, we presume that a Wassermann test was done on the spinal fluid and was negative.*

I do not believe that this condition is either poliomyelitis or encephalitis. I think that considerable significance may be attached to the knee injury. I believe that the trauma to the knee resulted in a focus of tuberculosis at that site, and the tuberculous infection, as so frequently happens with infants, has resulted in a tuberculous meningitis. There may or may not be a terminal bronchopneumonia.

*There is no record of a Wassermann on either of these spinal fluids.

BACTERIOLOGICAL REPORT

May 16 tubercle bacilli were found in the smear of the spinal fluid.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Tuberculous meningitis.
Malnutrition.

DR. JOSEPH GARLAND'S DIAGNOSIS

Tuberculosis of the right knee.
Tuberculous meningitis.
Bronchopneumonia?

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesions*

Tuberculous ulcers of the intestine and appendix.
Tuberculosis of the mesenteric and retroperitoneal glands.
Tuberculous meningitis.
Solitary tubercle of the brain.
Miliary tuberculosis of the lungs, liver and spleen.

2. *Secondary or terminal lesions*

Hemorrhagic necrosis of the wall of the esophagus with perforation.
Fibrinous pleuritis, right.
Otitis media, left.

DR. RICHARDSON: The scalp in the region of the anterior fontanel showed a small brown red spot. On section the pia of the convexities, rather low down, showed small areas which presented tubercle-like granulations. Along the base of the brain from the medulla up to the site of the optic chiasm, along the vessels of Willis and up the fissures of Sylvius there was a thick layer of exudate studded with tubercle-like granulations. The sinuses were negative. The left middle ear contained a small amount of pus, cover glass from which was negative for tubercle bacilli; leucocytes and diplococci were present. The right middle ear was negative. The mastoids were negative.

The brain weighed 800 grams. In the region of the optic thalamus on the right side there was a very small yellowish mass consisting of a yellowish caseous tissue surrounding a soft caseopurulent central material,—solitary tubercle. No other definite tuberculous masses were made out. The pial exudate in places extended for a short distance into the underlying cortical substance.

Spinal cord. There was considerable thin cloudy subdural fluid, and the pia in places along the cord showed a thin layer of reddish fibrinous material,—tuberculous meningitis.

The skin and mucous membranes were very pale. On the back there were brown-red spots in the lumbar region. The muscles were thin, pale and soft.

The peritoneal cavity was moist. There were a few scattered tubercles on the peritoneum.

The esophagus showed areas of hemorrhagic necrosis in places. On the right lateral aspect of the wall at one place the hemorrhagic necrosis extended through the wall. There was fibrinous pleuritis on the right side.

The small intestine showed scattered along the mucosa tuberculous ulcers. The peritoneal surfaces opposite the bases of these ulcers showed tubercles and in instances a chain of smaller and larger tuberculous mesenteric glands extended from them into the mesentery.

Appendix. In the midregion of the tube there was a small typical tuberculous ulcer.

The mesenteric glands were enlarged up to 6 cm. across. On section they showed numerous smaller and larger areas of caseous softening.

The retroperitoneal glands were slightly enlarged. Some of them showed small caseous areas.

The right pleural cavity contained 25 c.c. of dirty brownish red opaque fluid material and fibrin. The pleura in the lower half of the cavity was coated with dirty brownish fibrinous exudate. There was no fluid in the left pleural cavity.

The thymus gland was present but very small, negative.

The lung tissue generally was spongy, pale reddish, and yielded a small amount of thin reddish frothy fluid. Here and there in the substance of the organ tubercles were seen.

Liver. There were adhesions here and there between the organ and the diaphragm. On section the tissue showed here and there tubercle-like nodules.

Spleen. The tissue showed smaller and larger tubercles.

A typical case of tuberculosis of the intestine and the mesenteric and retroperitoneal glands with tuberculous meningitis.

CASE 11453

UROLOGICAL DEPARTMENT

An American travelling salesman of fifty-one entered for the first time March 25, fourteen years before his final admission. The complaint was cerebral attacks. His mother had "epileptic fits" which began as fainting attacks. At thirty-one the patient had gonorrhea. At forty-four he had an attack like those of the present illness. At forty-five he had a severe attack of grippe. Until two and a half years before admission he drank a great deal of whiskey, with an excess every two or three months

For years he had had morning headache, gradually passing off. In May, ten months before admission, he overate one day and in the evening at slight warning had a feeling of congestion back of the ears and pounding at the base of the brain. He then suddenly became dizzy and vomited, staggering from one side to the other. The dizziness was aggravated if he attempted to turn his head to either side. When he went to bed he felt much better, but was very uncomfortable for several hours. He continued to have slight dizziness, but was free from attacks until the past five weeks, during which he had had five similar attacks, three during the past week, the last one the day before admission and very severe. Recently he had noticed that his left leg twitched with a tendency to turn outward during the attacks. He urinated once at night and frequently during the day.

Examination showed a well nourished man with dry skin and high colored mucous membranes. The apex impulse of the heart was forcible, seen and felt in the fifth space 12 cm. from midsternum just outside the nipple line, corresponding with the left border of dullness. The left border of dullness was in the sixth space. There was slight pulsation. The right border was 5 cm. from midsternum. The retrosternal dullness was not increased. The action was regular. The sounds were of good quality. A faint systolic murmur was heard over the precordia, loudest at the apex, where it was localized, and in the aortic area, whence it was transmitted to the vessels of the neck. The aortic second sound was greater than the pulmonic second, ringing, clear and sharp. The artery walls showed slight thickening and tortuosity. The systolic blood pressure was 185-160. The rest of the examination, including the pupils and reflexes, was normal.

The chart was normal. The urine was alkaline at three of four examinations, specific gravity 1.024 to 1.014, the slightest possible trace of albumin at one examination. The blood was normal. The stools were normal. The fasting contents of the stomach were 18 c.c. of thin white material, free HCl present, guaiac negative. A test meal gave 65 c.c. with considerable mucus and a few brownish blood streaks, free HCl 0.109 per cent., total acid 0.18 per cent.

The patient was given high frequency treatment, resulting in a slight drop in the blood pressure. He had no symptoms. April 8 he was discharged.

After leaving the hospital he followed the instructions for diet given and was relatively free from symptoms. He had diminution of spots before the eyes, dizziness and ringing in the ears, though this last persisted to some extent. About thirteen years later he had acute tonsillitis. Soon afterwards he had frequency six or seven times a day and once or twice at night, with urgency and dysuria, especially in the evening. Soon after the onset he woke up to find that some blood had escaped from the urethra, and on voiding he saw some blood in the urine. Six weeks before and again two days before his readmission this occurred again. January 16 an attempt to do a cystoscopy in the Consultation Clinic was unsuccessful on account of bleeding.

January 17 he reëntered the hospital.

Examination showed a well nourished man of sixty-five, somewhat obese. The chest was barrel shaped. The apex impulse of the heart was in the sixth space well outside the nipple line. The left border of dullness was 14 cm. from midsternum, the right border 3½ cm. The action was somewhat irregular, with occasional extrasystoles. The sounds were of good quality. The aortic second sound was accentuated. There was a blowing systolic murmur at the apex and over the aortic area. The radials were palpable, the brachials tortuous. The blood pressure was 185/110. The lungs and abdomen were normal. Rectal examination showed the prostate enlarged, firm and inelastic, its median sulcus obliterated. The right pupil was greater than the left, otherwise the pupils and reflexes were normal.

Before operation the temperature was 97.5° to 101°, the pulse 50 to 90. The respirations were normal. The urine was cloudy and showed a large trace of albumin at all of four examinations, alkaline at three, specific gravity 1.028 to 1.016. The sediment showed many red blood corpuscles at all examinations, twice in great numbers. 1.3 per cent. of sugar at the first. The renal function was 50 per cent., appearance time five minutes. The blood is not recorded. January 17 the non-protein nitrogen was 35 mgm. per 100 c.c., the blood sugar 119 mgm., the uric acid 3.3 mgm. X-ray: Just opposite the ischial spine on the right was an irregular shadow of increased density which appeared to be included within the bladder outline, possibly representing a calculus or foreign material in the bowel or calcification in the soft tissues of the pelvis. There were no shadows in the upper tract suggesting calculi. There were proliferative changes about the margins of the lumbar vertebrae. The film of the upper urinary tract however was not entirely satisfactory.

January 20 cystoscopy was done. A satisfactory view was not obtained. The bladder urine showed very rare red blood corpuscles, sugar 1.5 per cent. The blood pressure was 170/110. January 23 another cystoscopy was done. After it the patient had more frequency, the blood pressure came down, reaching 160/105 January 31, and the general condition improved considerably.

February 2 operation was done. The patient was in satisfactory condition though he had gas pains the night of February 4. He

made an uneventful convalescence. The urine was still cloudy and alkaline, with much albumin and many red blood cells, no sugar. The wound showed sluggish induration at the edges, with stitch abscesses. A heart consultant found the condition satisfactory for operation. February 19 there was an urticarial rash.

That day a second operation was done. The following day he was nauseated and showed some prostration. There was no glycosuria. The some prostration. There was no glycosuria. February 21 he was better, but had a sore tion of a membrane on it. A throat culture showed streptococci. February 24 adjustment of the catheter improved the drainage. That evening he was slightly irrational and had a chill. Next day there was a suggestion of a rub at the left base. The temperature ranged from 99° to 103.2°. He had general malaise. The slight bilateral epididymitis remained the same, and there was still some rash. The wound was in fairly good condition. The heart sounds were more rapid and not so good in quality as formerly. February 26 a medical consultant found many medium and coarse crackling râles at the right lower back to the midscapula, without change in the breath sounds or dullness. Rectal examination showed marked brawny inflammation around the prostatic region. February 27 the catheter was changed again and a suprapubic self-retaining catheter pushed up into the sinus to improve the drainage. The general condition seemed to be improved, and the temperature fell to normal that evening. Three days later the epididymitis had flared up again. The wound was in excellent condition. The epididymitis improved and the general condition improved gradually, although he still ran an afternoon temperature of 100°.

March 9 the temperature was 103°. March 10 a right hydrocele was tapped and two ounces of clear straw colored fluid obtained. The temperature continued to be high. The patient was very apathetic. The urine was as before except for the absence of red blood corpuscles. The leucocyte count was 6,400, the polynuclears 94 per cent., the reds normal. Rectal examination and chest examination were negative. March 13 a portable X-ray of the chest showed extreme tortuosity of the aorta, some enlargement of the hilus glands and slight haziness at the left base. That day the temperature reached 104.3°, the pulse 135, the respiration 50. March 14 the patient died.

Discussion

BY DR. EDWARD L. YOUNG, JR.

The so-called cerebral attack fifteen years before the last admission sounds as though it were the result of drinking and overeating, especially as correction of both of these bad habits resulted in the improvement of the situation.

The next note of importance is thirteen years later, when he was sixty-four years of age, and that is hematuria following an acute tonsillitis. Of course at his age hematuria is a serious condition in such a large percentage of cases that it should always be considered so until proved of little or no consequence. If he were in early life we might think of the mild acute coccus kidney metastatic from the tonsillitis as the cause of the hematuria. Although that is possible here I think the other more serious conditions must be ruled out before this can even be considered.

The cystoscopy which was felt to be necessary was at first unsuccessful because of bleeding. That at once makes us believe that the cause of the bleeding is local, and at his age, because it was painless, is either tumor of the bladder or less probably of the kidney, or from an ulcerated prostate. Other minor conditions can be present, but only by about one chance in five.

Examination of the prostate shows that it is enlarged by rectum and so far as can be told from the touch not malignant. The renal function of fifty per cent. is very good, and it means that there has been only a short period of back pressure, so that the prostatic obstruction, if that is the cause of the trouble, is fairly acute. The non-protein nitrogen and the blood sugar are both within normal limits.

The appearance in the X-ray of some foreign body which might be in the bowel or might be in the bladder is a little confusing, but a cystoscopy ought to help differentiate.

DR. YOUNG'S PRELIMINARY DIAGNOSIS

Adenomatous prostate.
Bladder tumor?

PRELIMINARY DIAGNOSIS, JANUARY 20

Neoplasm of the bladder.

CYSTOSCOPY

Morphin. There was some obstruction to the cystoscope in passing through the prostate, the instrument appearing to be deflected to the right, and considerable depression was necessary. In spite of prolonged washing with constant irrigation the bladder could not be freed of blood enough to permit a satisfactory view. There appeared to be a growth in the base of the bladder, probably to the right.

Further Discussion

The full account of the cystoscopy really does not help us very much, because as unsatisfactory a view as this suggests makes the positive diagnosis of a bladder tumor difficult. So that if it were not definitely seen it must still be held in some doubt. It is very easy to mistake a blood clot on the base of the bladder for a tumor.

CYSTOSCOPY JANUARY 23

A fairly satisfactory view was obtained. On the right side of the bladder, particularly in the base, there was a tumor the size of a walnut the base of which could not be actually seen but was probably fairly broad. This was situated behind the posterior orifice, which it did not appear to involve. The prostatic ring was deformed and encroached upon by enlargement of the lateral lobes. This looked like beginning prostatic obstruction.

PATHOLOGICAL REPORT

A few small fragments showing on microscopic examination solid sheets of small epithelial cells with a frame-work of vascular connective tissue. The histological appearances are consistent with papilloma.

FURTHER DISCUSSION

The complete report of the second cystoscopy shows that there is a tumor. It is in a position in which it is very difficult to remove, as it comes in close proximity to the ureteral opening. The fact that the prostate is enlarged complicates the situation, as a suprapubic opening made to handle the tumor may fail of closure unless the obstructing prostate is likewise removed.

At his age it is possible that this is papilloma, but the betting is of course that it is malignant. In any event the only thing left to do is to open the bladder and destroy the tumor first and handle the prostatic situation second, depending on what is actually shown when the bladder is opened.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Tumor of the bladder.

PRE-OPERATIVE DIAGNOSIS, FEBRUARY 2

Tumor of the bladder.

OPERATION

Gas-oxygen. The bladder was distended with boric acid solution. A median suprapubic incision was carried down to the bladder and the peritoneum reflected backward so as to give good exposure. Two-inch incision in the bladder in the median line. On the right side about half an inch posterior to the right ureteral orifice was a papilloma the size of a thumb nail with a small pedicle which tore off as the tumor was being lifted. The base was cauterized with the high frequency current and two radium pearls of one millicurie each were inserted into the base. Examination of the prostate showed considerable intravesical enlargement. The wound was closed around a suprapubic drainage tube.

PATHOLOGICAL REPORT

A small fragment showing on microscopic examination festoons or sheets of epithelial cells which have central stalks of loose fibrous tissue and thin-walled blood vessels.

Papilloma.

FURTHER DISCUSSION

This was in fact what was done, and the tumor was apparently papilloma. The pathological report is that, but I believe that in this particular type of tumor the pathological report is of less than usual importance, because a tumor which is reported papilloma may recur as a carcinoma following operation, and I believe it should be treated as though it were in fact malignant. This is what they did here in the use of diathermy and radium at the base of the tumor.

Further examination of the prostate shows that it has got to be removed in order to give the man complete cure. This of course complicates the picture, as it adds greatly to the risk, but if the patient is given plenty of time to get good drainage following the first operation and to recover strength it is all that can be done. This was done, as he got two weeks and a half of drainage. At this operation I assume the prostate was removed.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Adenomatous hypertrophy of the prostate.

PRE-OPERATIVE DIAGNOSIS, FEBRUARY 19

Prostatic obstruction.

OPERATION

Spinal apothesine in the third lumbar space. The suprapubic incision was enlarged. The prostate was enucleated in routine manner and came out in three different lobes. There was considerable difficulty in delivering the prostate on account of contracture of the sinus. There was very little bleeding. A catheter was placed in the urethra and a small gauze pack to the cavity of the prostate.

PATHOLOGICAL REPORT

Prostate. About half a dozen irregular nodules, the largest the size of a hen's egg, with moist white lobulated surfaces on section.

Microscopic examination shows hyperplasia of the gland tubules and papillary proliferation of their lining epithelium. Some of the tubules are filled with wandering cells, and there is wandering-cell infiltration in the stroma.

Adenomatous hypertrophy.

FURTHER DISCUSSION

This showed that the prostate was pretty large and had to be removed. Following this

operation the patient had the unfortunate septic complications which can occur without our being able to prevent them.

The throat infection did not seem to be important, and yet it was helping to use up his strength.

The epididymitis which they speak of often occurs following a prostatectomy. Apparently they left a catheter in the bladder for drainage. I have come to feel that this increases the possibility of epididymitis somewhat, and that although leaving it out does not always do away with that complication it lessens it enough to justify the slightly longer convalescence.

The signs in the lungs may be from congestion or slight infection.

The story from this point on is that of a varying amount of infection which though never showing itself in any one spot which could be directly attacked seems to be hitting him in various places. There seems to be little if any resistance to this infection, and I think the death can be laid to the gradual wearing down of the patient's strength by the low grade infection.

X-RAY INTERPRETATION

No definite pathology in the lungs, although the haziness at the left base was a little suggestive of beginning pneumonia.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Benign hypertrophy of the prostate.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Papilloma of the bladder.
Adenomatous hypertrophy of the prostate.
Low grade infection.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

(Papilloma of the bladder.)
Abscesses of the left epididymis, the prostatic shell and the left kidney.

2. *Secondary or terminal lesions*

Cystitis.
Ureteritis and pyonephrosis, left.

3. *Historical landmarks*

Operation wounds.

DR. RICHARDSON: The head was not examined.

The examination was restricted and made through a short incision in the abdominal wall; the organs were examined *in situ*. Pubis up there was a linear scar 9 cm. long. The suture marks were faintly visible. At the lower end of the scar a sinus led into the bladder.

The right kidney was large and edematous. The left kidney was very large. The capsule stripped, leaving a surface dotted over with innumerable smaller and larger frank abscesses. Scattered through the substance of the kidney there were numerous abscesses. The pelvis contained much pus. The ureter contained much purulent material and the bladder was the seat of a frank cystitis. The ureteral openings were free. In the situation of the prostate there was a rather thick fibrous shell. The greater part of the prostate was wanting. Examination of the shell showed several abscesses and one larger one extending up in the substance of the shell and reaching along the posterior wall of the bladder. The left epididymis was large, firm, reddened, and on section yielded much pus. Further examination was restricted.

A frank case of abscesses of the left epididymis and prostatic shell with cystitis, ureteritis, and pyonephrosis of the left kidney.

DR. YOUNG: This general wearing down of the patient by infection is what killed him. I do not see how it was possible to have done any differently from what was done. It is hard to see just why the left kidney should have been the one most damaged when the tumor rose near the right ureteral orifice and the reaction from the operation would have affected that rather than the left.

WEEKLY NOTES ON CHILD WELFARE TOPICS COMPILED BY THE U. S. CHILDREN'S BUREAU

Tenement Home Work, Pennsylvania

Pennsylvania, under a new ruling of its State Industrial Board, will require each employer of home workers to have a license from the department of labor and industry, to tag each shipment to a home worker with a registered label, to satisfy himself that the home is sanitary and free from communicable diseases, and to appoint some person over 21 years of age in the home as his representative to be responsible with him for carrying out the law.

Institute of Child Welfare, Minnesota

Nursery school classes for children between 2 and 4 years of age will be established by the Institute of Child Welfare at the University of Minnesota. The purpose of the institute is to study the small child and to make the results of its study available to the people of the State. Experimental educational programs will be developed through the nursery school. Later the institute hopes to study a group of babies from birth to 2 years.

Poor Eyesight Among School Children

One-fourth of the public-school children in the United States have defective vision and symptoms of eye strain, according to Joshua E. Hannum of the Eyesight Conservation Council of America.

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A DEFENSE OF THE SCHICK TEST

FROM a casual reading of Dr. Wilfred H. Kellogg's paper on the Schick test in the October issue of the *American Journal of Public Health* one might gain the impression that the Schick test is not the reliable affair that physicians and health officers claim it to be.

Any article from Doctor Kellogg's pen deserves consideration, but any article dealing with so important a procedure as the Schick test—whether for or against it—must be subjected to a severely critical reading.

Doctor Kellogg concludes that the Schick test is subject to errors in its application, (interpretation? Ed.) which more than offset the value of the information desired from its use; that a high percentage of false negative Schick tests have been found in persons following immunization when checked by the results of the Kellogg test; that the Schick test is of academic interest only and should be abandoned; and that for determining the immune status of individuals and small groups the laboratory test of the author is convenient and accurate.

These conclusions are, at first glance, somewhat startling, but a careful scrutiny of the subject matter upon which the conclusions are based reveals an over emphasis of certain inaccuracies, with an undue importance given to possible fallacies which may easily be avoided, and —we can't help feeling—a desire to promote the author's modification of the well known Roemer test.

Doctor Kellogg overlooks two important facts. The first is that no discovery since that of diphtheria antitoxin has so enriched our knowledge of diphtheria as has that of the Schick test. Its application to various age, social and geographic groups has given us a wealth of data pertaining to the immunology and epidemiology of the disease. The second fact is that it is this new knowledge gained by the use of the Schick test that has been largely responsible for our present successful methods of diphtheria prevention.

We all know that the accuracy of many biological tests may, even in skilled hands, be subject to certain errors. Park reported a two per cent. discrepancy in the results of duplicate Schick tests. In the Massachusetts experience, cases of true clinical diphtheria developing in persons previously reacting negatively to the Schick test are so very rare as to be negligible. The first objection, therefore, scarcely constitutes a valid reason for abandoning a procedure that gives such a high percentage of reliable results, especially when no substitute equally practical or valuable is offered.

Doctor Kellogg emphasizes the difficulty in differentiating pseudo from positive reactions. Any such fine discrimination as he mentions is unnecessary. It is the general, and reasonable practice to interpret doubtful or confusing reactions as positive.

His contention that some outfits supplied for the test are unreliable has some support in fact. A few such outfits found on the market may permit deterioration of the toxin or cause some confusion in the proper preparation of the dilutions. There are, however, outfits available which are specially designed to obviate these difficulties, and which are entirely reliable when used according to the explicit directions usually accompanying them.

Doctor Kellogg's conclusion that the Schick test be supplanted by his test has little to recommend it for private or public health practice. It is a laboratory animal test requiring a degree of skill and experience limiting its performance solely to trained serologists, which, in turn, limits its application to purely investigative studies or to measuring the immunity of single individuals or small groups.

With one conclusion of Doctor Kellogg's we are in hearty accord, but with a reservation. His statement that "the practice of immunizing children without regard to their immune status has everything in its favor, and it has no disadvantages," is substantially the advice now given by many authorities on this subject. The majority of children of school age are susceptible to diph-

theria and should be immunized by the usual course of toxin-antitoxin injections without receiving a preliminary Schick test. With the improved one-tenth L plus mixtures now used the former slight reactions are rarely encountered. But, before administering toxin-antitoxin to children over 10 years of age it is still desirable to perform Schick tests in order to detect the presence of hypersensitiveness which may require a modified course of toxin-antitoxin injections.

We can in no way agree with Doctor Kellogg's statement that the use of the Schick test for the purpose of testing children after toxin-antitoxin treatment is futile. The determination of the immune status of the child after this treatment is highly important. The Schick test properly performed gives us sufficiently trustworthy evidence of this status.

The large and constantly increasing experience of physicians and health officers in Massachusetts is quite contrary to the experience reported by Doctor Kellogg. It confirms the reliability and value of the Schick test as an agent in diphtheria prevention and gives an emphatic "No" to his, "Should the Schick test be abandoned?"

A UNIQUE SERVICE

ATTENTION is called to a notice from the Boston City Hospital which appeared on page 852 of the October 29th issue. The following named diseases have been observed at various times in Boston and vicinity and it is believed that there is a reasonable probability that those not so designated may, at some time, be found here.

Beri-beri, *Blastomycosis*, Climatic bubo, Deer-fly fever (or Tularemia), Dengue, *Elephantiasis*, *Filariasis*, *Inguinal Granuloma*, *Madura Foot*, *Malta fever* (Undulant fever), *Myiasis*, *Pellagra*, *Rat-bite fever*, *Scurvy* (adult), *Sprue*, *Tropical ulcer* (or Phagedenic ulcer), *Typhus fever*, *Yaws* (or Framboesia).

Dysentery: (a) *Amoebic;* (b) *Bacillary* (adult); (c) Infusorial Dysentery: *Giardia* (or "Lamblia"), Trichomonas, *Balantidium*.

Fluke Diseases: (a) *Schistosomiasis* (Bilharziosis); (b) *Clonorchiasis;* (c) Paragonimiasis (or Endemic Hemoptysis).

Hookworm disease (or Uncinariasis or Ankylostomiasis).

Leishmaniasis: (a) *Kala-azar;* (b) *Oriental sore* (or "Aleppo Boil"); (c) *South American Leishmaniasis* (or "Forest Yaws" or "Uta").

Malaria: (a) *Tertian;* (b) *Aestivo-autumnal* or *subtertian;* (c) *Quartian*.

Tape Worms: (a) *T. echinococcus;* (b) *T. nana;* (c) *Diphyllobothrium latum;* (common tapeworms not included).

Trypanosomiasis: (a) *African Sleeping Sickness;* (b) Chagas' Fever of South America.

We are informed, moreover, that the diseases listed in the notice above referred to are far more common than is generally supposed in Boston, that they may easily escape recognition and that, could most of those now diagnosed be brought together, a useful clinic of sufficient size for teaching purposes would be formed. Such a clinic would render a unique service to the community and to the individual. Study in it of obscure diseases by special methods would inevitably bring to light numerous additional cases of tropical disease now passing unrecognized because unsuspected or incompletely studied.

It is well known that amoebiasis does not necessarily manifest itself by dysentery, that carriers of E. histolytica may be in good health, and that chronic or recurring digestive disorders of a mild character may be caused by amoebiasis. As in the case of malaria, which is by far the most fatal disease of the tropics, so amoebiasis may develop within the temperate zone. Examples of this disease have originated in Nova Scotia and in certain places in the northern United States. How many physicians are there among us who consider amoebiasis as a possible cause in their cases of chronic colitis? Again, how often do physicians have the stools cultured in the early stages of diarrhoea in the adult when the presence of blood and mucus has not been a prominent feature of the case? The dysentery bacillus may be difficult to cultivate from the faeces and reports may be negative even in a case of bacillary dysentery. Positive results, however, would be obtained more often if specimens were obtained early in the disease and delivered fresh to the laboratory.

As a consequence of the general recognition of the seriousness of bacillary dysentery among young children and the measures taken to combat it in this field, a great many lives have been saved. Among adults it causes local epidemics which attract attention from time to time but it is highly probable that many sporadic cases are overlooked by the health authorities because not diagnosed by the physician and, consequently, not reported.

One of the aftermaths of the war is the presence in all communities of men who suffered Overseas from amoebic dysentery or who were exposed to other protozoan or helminthic infestations. From these cases as foci of infection, diseases, unfamiliar here, may spread to other individuals. We are inclined to believe that a clinic for tropical diseases, if utilized to the full, might provide a good deal of data valuable to the Department of Public Health.

SCIENCE AND THE PSYCHE

MANKIND in general is endowed with two curiously dissimilar characteristics—an insatiable curiosity and an intensive desire to believe. Eager to know that which is hidden, we are sadly lacking in the critical sense which should guide our judgment in the acceptance of new knowledge. It is with the greatest difficulty that we separate fact from fancy, employ the power of analysis, and reject that which is not

proven, once we have set our minds on believing it.

Man's curiosity has been responsible for most of his progress. The desire for knowledge has resulted in the scientific discoveries that have done so much to ameliorate his condition, as many of the mysteries of nature have gradually revealed themselves before his searching mind. In all his researches, however, his greatest obstacle has been the innate tendency to accept as proven that which he wished to prove. The working hypothesis has been the goal which he has always striven to reach; sometimes the goal has been accomplished; often it has led on long roads of labor that had no fruitful end.

The mystery of the hereafter, nature has never yet allowed to be revealed and it is towards this realm of hidden knowledge that man has most often wistfully gazed. In saga and in fable he has peopled his Geistwelt with the shadowy form of those he knew and loved, and his fancy has become a fixed belief. It is not strange then, that one of the oldest and the most modern form of magic has been to call forth from the shadowland the spirits of those that inhabit it, for half-believing we need but little encouragement to believe indeed.

Belief in the human medium of communication has long been one of our weaknesses, and as each idol has fallen; or each system of trickery has been revealed, we have been eager to raise a pedestal for the new one. There are many who believe implicitly that this form of communication with the dead is an accomplished fact, although there is not yet on record any acceptable proof that such communication has taken place, that the dead can communicate, or even that there is a life beyond this one. We may hope indeed that life continues an existence and a happier one; perhaps at the most we may believe that there will be a dreamless state of ease untroubled by the aspirations and the disappointments of our present life, but if we wish for comfort we will find it in the faith that all must be for some purpose, and not in the gropings of an ectoplasmic hand or the childish prattlings of a disembodied spirit.

It is not amiss that any claim to familiarity with a world beyond the compass of our earthly mind should receive serious and scientific consideration. When the investigation has been made and the proof has been found wanting, let us accept it with a feeling of thankfulness that the Power we must revere does not reveal itself to us through the medium of an ectoplasmic hand.

THIS WEEK'S ISSUE

Contains articles by the following named authors:—

LAHEY, FRANK H., A.B., M.D., Harvard 1904; F. A. C. S.; Surgeon to the New England Deaconess and the New England Baptist Hospitals. His subject is: "Diagnosis and Management of Biliary Tract Disease."

BELDING, DAVID L., M.A.; M.D., Harvard 1914; Member, Research Staff, Evans Memorial, Boston; Associate Professor of Bacteriology, Boston University School of Medicine, and Bacteriologist, Massachusetts Homeopathic Hospital. Associated with Dr. Belding is

GOLDMAN, JOSEPH, A.B.; M.D., Harvard 1922; Instructor in Bacteriology and Immunology and Assistant in Medicine, Boston University School of Medicine, and Visiting Physician, Boston Sanatorium. They write on "The Wassermann Test, XIX Sulpharsphenamin Dermatitis. Report of a Case with Some Comments."

POLLOCK, HENRY M.; M.D., University of Minnesota College of Homoeopathic Medicine and Surgery 1897; Superintendent, Massachusetts Homoeopathic Hospital. His subject is "Success in Medicine."

COUES, WILLIAM PEARCE, M.D., Harvard 1894; F. A. C. S.; Intructor in Surgery, Tufts College Medical School; Surgeon to Out-Patients, Massachusetts General Hospital; Assistant Surgeon, Boston Dispensary. His subject is: "The Treatment of Early Paronychia."

CRONIN, HERBERT JOSEPH, M.D., Harvard 1911. His subject is "Paranoia. A Traumatic Industrial Accident Case Complicated by a Mental Derangement."

STILES, PERCY G., S.B., Massachusetts Institute of Technoolgy 1897; Ph.D., Johns Hopkins 1902; Assistant Professor of Physiology, Harvard Medical School; Member, American Physiological Society; Fellow, American Academy of Arts and Sciences and other scientific bodies. He presents a resume of Progress in Physiology.

The Massachusetts Medical Society

MEMBERSHIP CHANGES

Dr. Harold L. Babcock has moved from Boston (Suffolk) to Castine, Maine (Non-Resident List).

Dr. Harry Fein has opened an office at 491 Commonwealth Avenue, Boston.

Dr. Mervin Fossner has moved from Vernon Street to 69 Providence Street, Worcester.

Dr. Sydney C. Hardwick has moved from Maitland, Fla., to Winter Park in the same State.

1906 } Henry, Thomas Francis, Salem, 400 Essex
1925 } Street, was restored by vote of the Council, October 7, 1925.

Dr. H. L. Jackson of Springfield has moved his office from 11 Pearl Street to 121 Chestnut Street.

Dr. Frederick P. Moore has moved from Watertown to Belmont. His address is 94 Fairview Avenue.

Dr. Harold A. Spaulding has moved from Weston (Middlesex South) to South Weymouth (Norfolk South). His address is 41 Pond Street.

MISCELLANY

ADDRESS AT HARVARD MEDICAL SCHOOL

THE last of the series of lectures on "The Care of the Patient" was given Thursday afternoon, October 22, at Harvard Medical School by Dr. MacFee Campbell. Dr. Campbell dealt with the subject from the point of view of the psychiatrist. Following is a brief outline of his remarks.

Many minor psychiatric disorders are relieved by the general practitioner, internist and surgeon. That is as it should be. We look forward to the time when the general practitioner will feel that every patient before him is a human being in difficulty. If this difficulty is not a physical ailment but rather a conflict in the individual's social or personal life, he will inquire into the situation and see whether or not with his experience he can help the patient.

Every case of sickness, whether primarily mental or physical is a balance between the individual's resistance and some noxa. With our complicated laboratory methods we have come to feel that we should be able to reduce all the reactions of men to some simple formulation. We must remember however that there are other detrimental factors in life besides infectious organisms. A man's conflict with some disturbing factor in his social environment may be much more real to him than some pathological process in his internal organs.

Some consider that psychiatry deals too much with the abstract. On the contrary, the studies of the psychiatrist are very concrete. To study the action of the heart, leaving the individual out of account, is something extremely abstract. The problems of the patient, his hopes, desires, social adjustments, etc., make up the real stuff of life. If a patient is depressed we may examine all the various organs and find nothing. We then must take up more fully and completely the situation in hand and try to analyze it in order to understand the cause of the depression.

One great difficulty is that many of us still have a mediaeval attitude toward mental disorders. We should look at them with the same objective, scientific attitude as we do at physical disorders. A case was cited of a woman who felt depressed, and nervous and couldn't sleep. Knowing no one better from whom to seek advice, she went to her obstetrician and told him about her condition. He made a routine examination and found nothing wrong. He then made some jocular remark about women being nervous and high-strung and dismissed the case. Later the patient's husband committed suicide and she felt responsible, because she had been unable to fill her place in the home. The question is: "Was she responsible or was the physician responsible who passed her complaint over so lightly?" These mental problems of patients should not be outside the interest of the general practitioner. He knows the constitution of his patients and the circumstances in which they live. These should be systematized and studied, subject to the same laws as other fields of study. We can seek to analyze the patient's constitution and his situation as well as his internal organs. Having done all this, we seek to modify the situation or reinforce his personality to meet it. We can give him an atmosphere of sympathy and interest in which he may frankly discuss his problem.

If we are to understand why a child has night terrors, we must analyze that child's experiences. Terrors are often the expression of some very complicated psychological factors, the conflicting stresses and strains in the child's nature. We must inquire about its interests, its talk and its play. Before we can explain the child's action we must examine the whole situation.

How much difficulty might be spared to young people, if every doctor had a healthy attitude towards sex factors, if he would give much needed advice to parent and child! We become highly sensitive to a foreign protein when a small particle is injected into our bodies. So a minor episode in the sex life of a child if dealt with unhealthily, may show little above the surface at the time but when in later life, some ordinary situational test is met, there is a tremendous turmoil in the individual's life. Correct instruction at the right age might have fortified the child to meet the more difficult situation.

The psychiatrist must live an amphibian life. From soaring into the ethereal realms of psychoanalysis, he must descend to think of enlarged livers, over-active thyroids and disturbed gastric function, etc. Whether the difficulty is gastritis, pneumonia, delirium, hallucinations or what not, all these things have the same validity. They are the stuff with which he must deal. At all times he must consider the more complex reactions of the individual to his whole environment. He must think of the patient as a human individual.

If we really care for the patient, our interest in him is going to be returned. And unless there is some sort of affection, some emotional rapport between patient and physician, we will not be able to be of much use to the patient. How can we give them the best care and help them to care for us in the right sort of way? How can we also help them to care for the right sort of things in life? To answer these questions we must think of the individual not merely as a passive recipient of influences. We must remember that he feels that he plays a part in the processes of the world. He has a feeling of importance and sense of responsibility. He has his own scheme of spiritual values and these

comprise perhaps the most dynamic force in his life. They are of the greatest compensating value in hard situations. We must have some interest in human nature and human destiny, if we are really going to care for our patients.

THYROID SURVEY OF CONNECTICUT

At the request of the Connecticut State Department of Health, representatives of the U. S. Public Health Service are now in Connecticut making a thyroid survey. Interest in the thyroid gland has been intensified during recent years by the discovery that thyroid enlargement, sometimes called endemic goitre when it occurs in excessive degree, may be prevented by small amounts of iodine. It would seem that the thyroid requires a minute quantity of iodine in order to perform its function and when not enough iodine is present the gland enlarges, possibly for the same reason that the muscle of one's arm enlarges when greater demands are being made upon it. In some sections of the country, particularly in the middle west around the Great Lakes and in some parts of the far west, a majority of the children have some degree of enlargement of the thyroid. Enlarged thyroids appear to be much less frequently observed in the eastern section of the United States and it is not believed that such conditions exist to any great extent in Connecticut.

The plan of the survey is to select several cities or towns in each county and examine a representative group of perhaps 500 to 1000 school children in each. In order to measure the maximum incidence of thyroid enlargement, it is particularly desired to examine children of adolescent age. This would include pupils in the 7th and 8th grades in the grammar school and students in the high school. The thyroid examination is very simple. It consists merely in inspection and palpation of the thyroid to determine whether the gland is normal or enlarged. As an additional bit of research work the examiners are also looking for coexistent focal infection of the teeth, tonsils and adenoids. Since the determination of the condition of these organs takes only a moment the entire examination requires little time.

The purpose of the survey is primarily to ascertain the percentage of thyroid enlargement of different degrees. Incidentally the information concerning infection of the teeth, tonsils or adenoids will permit a study of thyroid enlargement in relation to such focal infection. By such a study it is desired to obtain information as to whether or not focal infections may be one of the factors causing enlarged thyroid.

It is expected that the survey will continue for some time. The cards upon which records are made will be sent to the office of the U. S. Public Health Service for tabulation.

LIST OF PHYSICIANS REGISTERED IN MASSACHUSETTS SEPTEMBER 10, 1925

Adelstein, Leo Joel, 22 Avalon Street, Revere.
Akin, Moses, 45 Townsend Street, Roxbury.
Archibald, William Charles, McLean Hospital, Waverley.
Barbarisi, Constantine, 160 Cottage Street, East Boston.
Bennett, John Daniel, 37 Stone Avenue, Somerville.
Bennett, William Howard, Jr., St. Luke's Hospital, New Bedford.
Berkowitz, Benjamin, Eastern Maine General Hospital, Bangor, Me.
Berman, Philip Grossman, St. John's Hospital, Lowell.
Bickford, Robert Harry, 222 Hamilton Street, Cambridge.
Bizub, Emil Nicholas, 208 Second Street, Passaic, N. J.
Blumgart, Herrmann, Boston City Hospital, Boston.
Boucher, George Joseph, 38 Condict Street, Jersey City, N. J.
Britton, Edgar Murray, 93 Douglas Ave., St. John, N. B.
Bushold, Charles, Lawrence General, Lawrence.
Capece, Nicholas Joseph, 62 Beach Street, Milford.
Cardi, Alphonso Blaise, 71 Jaques Avenue, Worcester.
Carmody, John Joseph, 13 Raymond Avenue, Springfield.
Christian, Thomas Davis, Jr., 129 Sutherland Road, Brookline.
Cicma, Haralambie George, 69 Park Street, Lynn.
Cleary, George Herbert, 118 Bennington Street, East Boston.
Corsini, Tonino Vincent, 324 Court Street, Plymouth.
Covitz, Edward Everett, Cambridge City Hospital, Cambridge.
Currey, Hiram Meyrick, 331 Huntington Avenue, Boston.
Davis, Max, Massachusetts Homeopathic Hospital, Boston.
Dibbins, Samuel Albert, Lowell General Hospital.
Doherty, John Leo, St. John's Hospital, Lowell.
Donovan, Paul Royal, Boston City Hospital, Boston.
Dores, Harry, 1 Sherwin Street, Roxbury.
Dunn, Reubin Stafford, 21 Beacon Street, Danvers.
Dyer, Marguerite Leland, 61 Central Street, Hudson.
Eisenhardt, Louise Charlotte, Dedham Street, Newton Center.
Farrell, LeRoy Francis, 84 School Street, Lowell.
Gallivan, John Joseph, 23 Central Street, South Braintree.
Gargle, Samuel Leo, 36 Staniford Street, Boston.
Gilmore, Edward Bernard, Boston City Hospital, Boston.
Girardi, Victor Joseph, Fordham Hospital, New York.
Goldberg, Maurice, 39 Butler Street, Lawrence.
Goldberg, Wyman Bernard, 21 Hewins Street, Dorchester.
Goldstein, Jacob, 71 Franklin Avenue, Revere.
Greene, James Alexander, 6 Colon Street, Brighton (Suite 18).
Hardwick, Rachel Louise, 62 Spear Street, Quincy.
Hiller, Mary Elizabeth, 679 Broadway, Flushing, N. Y.
Hiscoe, Kenneth Brooks, 49 Roseland Street, Cambridge.
Hogan, Bartholomew William, 1497 Washington, West Newton.
Jewell, Edith Florence, 1 Homstead Avenue, Worcester.
Johnson, Justin Reynolds, 35 Belle Avenue, Lynn.
Katzeff, Miriam Gertrude, 23 Ormond Street, Mattapan.
Keene, Carroll Herbert, 82 East Concord Street, Boston.
Kelley, Harry Norton, Boston Sanatorium, Mattapan.
Kelley, Vincent John, 10 Central Street, Beverly.

Kennedy, Thomas Charles, 27 Otis Street, Chicopee Falls.
King, Leopold Friman, St. John's Hospital, Lowell.
Kingsbury, Curtis Burt, St. Luke's Hospital, New Bedford.
Kirkwood, Robert Joseph, 180 Dorchester Street, Boston.
LaPalme, Joseph Antonio, St. Vincent Hospital, Worcester.
Leader, Richard Timothy, Care of U. S. Veterans Bureau, 600 Washington Street, Boston.
Lewis, David, 233 Humboldt Avenue, Boston.
Lilly, Edward, 1 Chapel Street, Shirley.
Lionberger, David Leo, 240 Longwood Avenue, Boston.
Loman, Julius, 18 Page Street, Dorchester.
Lynch, John Francis, 18 Walker Street, Leominster.
Lynn, Leo Joseph, 16 Lambert Avenue, Chelsea.
Macaulay, Roderick Alexander, Springfield Hospital, Springfield.
Maloney, Albert Michael, 930 East Fourth Street, South Boston.
Manton, Anstis Pearce Dyer, New England Hospital for Women and Children, Roxbury.
McCarty, Raymond Anthony, 89 Grant Street, Waltham.
McGillicuddy, James Gibbons, 40 Crandall Street, Glens Falls, N. Y.
McLean, John Archibald, 31 Worcester Square, Boston.
Merchant, Raymond Francis, 25 Myrtle Street, New Bedford.
Miller, Fisher Booth Eckert, Box 8, Foxboro.
Mirabello, Frank, 28 Billings Avenue, Medford.
Munro, Rose Carleton, Colorado General Hospital, Denver, Colo.
Muir, Wallace Pierce, 1196 Morton, Mattapan.
Murphy, George Raymond, Boston City Hospital, Boston.
Myers, Roscoe Wallace, Central Maine General Hospital, Lewiston, Me.
O'Connor, Cornelius Thomas, 10 Couperthwaite Street, Cambridge.
O'Reilly, Joseph Leo, St. Mary's Hospital, Brooklyn, N. Y.
Phillips, Arthur Francis, 220 Brooks Street, East Boston.
Pinkus, Louis, 87 Glenway Street, Dorchester.
Price, Helen Olivia, 82 East Concord Street, Boston.
Principato, Roberto, 25 North Anderson Street, Boston.
Record, Myles Standish, Lowell Corporation Hospital, Lowell.
Roberts, William McKinley, Bridgeport Hospital, Bridgeport, Conn.
Rogers, Horatio, 623 Osgood Street, North Andover.
Rudiger, Louis Joseph, 88 North East Street, Holyoke.
Ruskin, Lawrence, 4 Hartwell Street, Roxbury.
Sannella, Theodore, Springfield Hospital, Springfield.
Shea, James William, 2 Thwing Street, Roxbury.
Shields, Richard Nelson, 452 Columbia Road, Dorchester.
Silverman, Harry Zelisk, 56 Devon Street, Roxbury.
Smith, Hollis Randall, 82 East Concord Street, Boston.
Smith, Jesse William, U. S. Naval Hospital, Chelsea.
Speare, George Spyrounes, 10 Longwood Avenue, Boston, Mass.
Stettler, Wayne Dewey, Burbank Hospital, Fitchburg.
Stochaj, John William, 64 Whitcomb Street, Webster.
Swan, Charles Louis, Jr., 203 Radnor Hall, Cambridge.
Taylor, Leland Harris, 41 Egremont Road, Brookline.
Toetz, Julius Burt, 167 Walnut Street, Chelsea.
Tuttle, Esther, Massachusetts Hospital School, Canton.
Verdone, John, Boston City Hospital, Boston.
Walsh, William Francis, Cambridge City Hospital, Cambridge.
Weiner, Frederick Frank, Brockton City Hospital, Brockton.
Weinstein, Nathan, 207 Callender Street, Dorchester.
Whitney, Jerone Andrew, Springfield Hospital, Springfield.
Yorshis, Morris, 45 Fayston Street, Roxbury.

Total number, 105.

Certified by the National Examining Board and registered July 16, 1925:

Davis, Allan Littlefield, Boston City Hospital, Boston.
White, Robert Rombout, Boston City Hospital, Boston.

Special Examination—Registered August 18, 1925:

Rothwell, Stephen Gainsford, 243 Charles Street, Boston.

National Board—Registered September 10, 1925:

Thompson, Willard Owen, 143 Audubon Road, Boston (Suite 41).

National Board—Registered September 21, 1925:

Quinn, Milton James, Care of Cheney Brothers, South Manchester, Conn.

REJECTED

Graduates of the following named institutions:

Naples Univ., 1922.
Warsaw-Don Univ., 1920.
Univ. of Montreal, 1923.
Royal Univ., 1914.
Constantinople Univ., 1914.
Athens Univ., 1923.
Meharry, 1921.
Laval Univ., 1925.
St. Louis P. and S., 1922, 3; 1923, 4; 1924, 3; 1925, 3.
Middlesex, Cambridge, Mass., 1922; 1923, 3; 1925, 2.
Boston P. and S., 1925.
Philadelphia Ost., 1925.
Massachusetts Ost., 1923; 1925, 13.
American School of Ost., 1925, 2.
Kirksville Ost., 1925.
Still Ost., 1925.

Total rejected, 47.

PSYCHIC RESEARCH

I have talked with many spirits, both at home and far away,
I have met them in the gloaming, I have walked with them by day;
I have clapped them on the shoulders when their eyes were full of tears,
I have whispered gentle nothings, just to cheer them, in their ears.
I can gladly share their troubles, but the thing I cannot stand
Is to have them shake my flipper with an ectoplasmic hand.

On the stormy coasts of Iceland I have stood in swollen pride,
While the were-wolves ululated, snarling hoarsely at my side.
I have shouted at them harshly, I have kept them in their place,
For they knew I was a better man than they could hope to face.
They were metamorphosed spirits, but I never was unmanned,
For at least they did not touch me with an ectoplasmic hand.

In years past I have fraternized with legions on Cape Ann;
We have met in haunted houses where we've rushed the jovial can.
I have dined with divers witches in their homes in Salem, Mass.
I have raised their bets on deuces, when they only dared to pass.

We have spent whole nights at poker, like a jolly human band,
But they've never, never dealt me out an ectoplasmic hand.

Oh, to be a happy medium has always been my joy—
I love to feel the tables tip, that common folk annoy;
My middle name is Ouija and I'm psychic to the core;
I've talked with all the ancients' ghosts and found each one a bore.
I have shaken gin and orange juice on Charon's Stygian strand,
But I'd rather shake a fish fin than an ectoplasmic hand!

JOG.

NEWS ITEMS

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about $300, will be made on July 14, 1926, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published. The essay should represent an addition to the knowledge and understanding of the subject based either upon original or literary research. They must be typewritten, and in English acceptable for publication without necessity for editing by the committee. Any illustrations should be appropriate and correctly annotated with the text. Essays must be received by the secretary of the college on or before May 1, 1926.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelop having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1925 has been awarded to Dr. Raphael Isaacs, Boston, Mass., for his essay entitled: "On the nature of the action of Roentgen Rays on living tissue."

JOHN H. GIRVIN, *Secretary.*

19 South Twenty-second Street, Philadelphia, Pa.

DR. ARIAL W. GEORGE of Boston, Mass., addressed the Adams County (Ill.) Medical Society at its meeting on Monday, October 12, in the Chamber of Commerce, Quincy, Ill., on "The Present Status of Gastro-Intestinal Examination by X-Ray." Dr. George is one of the best known radiologists in this country. Every ethical physician was invited to attend the meeting.—*Journal of the Missouri Medical Association*, October, 1925.

CORRESPONDENCE

FURTHER TRIBUTE TO DR. DAVID W. CHEEVER

Editor, Boston Medical and Surgical Journal:

I am moved to add my tribute to that of Dr. Coues in his letter of October 22, concerning the late Dr. David W. Cheever.

Dr. Cheever's personality was indelibly impressed upon my memory as a student—an impression of respect for the man and the physician which increasing years and experience have only served to deepen.

Always quiet and unassuming, his words were few and to the point, and his lectures were models of concise, clear-cut statement based upon his own wide observation and experience—sagacious, well-balanced and sound. His "Lectures on Surgery" was one of the first medical books I ever bought, and it still serves me well in a diagnostic pinch.

And speaking of lectures, may I say a word of appreciation also of two other men to whom I owe much: Dr. Fred C. Shattuck and Dr. William L. Richardson? I take it that the test of a good lecturer or teacher in a professional school is: First, the ability to draw—to secure attendance; and second, to put his knowledge over in a way to clinch it upon the memory of his students. These qualities these three men—Cheever, Shattuck and Richardson—all possessed to a marked degree; each in his own, and quite different, way.

Dr. Shattuck's tactful and kindly method with patients in his clinic, and many a quip and aphorism—nuggets of medical lore—have stuck in my memory and saved me many a slip. I doubt if anything he has ever written has escaped me, and I am glad to note that he still "cogitates" as of yore.

Dr. Richardson's lecture room was always crowded. To him a spade was a "spade," always. The devious ways of the pregnant woman were as an open book to him, and from his roost on the blackboard rail, with his hands in his pockets, he could describe the mechanism of labor in a masterly way impossible to forget.

Very truly yours,

MAURICE W. PEARSON, M.D.

Ware, Mass., October 24, 1925.

UNUSUAL STATISTICS RELATING TO DIPHTHERIA

Editor, Boston Medical and Surgical Journal:

What is diphtheria now doing?

So far this year Wakefield has had but 6 cases of diphtheria, although the average has been over 35 for the previous four years. The ages are: 3, 8, 8, 16, 24, 52.

In Stoneham they have had 32 cases this year, nearly all of which occurred in a sudden epidemic in the spring, apparently traced to a milk supply, by the local and the State Boards of Health. The ages are: 3, 28, 18, 16, 3, 5, 33, 18, 65, 64, 7, 52, 21, 25, 18, 60, 28, 18, 59, 20, 35, 9, 20, x, 4, 50, 3, 48, x, x, 3, 60. Of these cases 6 are of pre-school age, 2 of school age, 21 adult (over 16), and 3 unrecorded as to age. Of the adult cases 3 were in the fifties and 4 were over 60.

In the last issue of the *Commonhealth*, it is stated: "Wherever diphtheria occurs the highest number of cases, in relation to the number exposed, is among school children, the next highest among pre-school children, and the lowest among adults. This is true irrespective of any fluctuations in the number of cases. Should this *constant ratio* be altered we might well feel that any innovation in diphtheria control had had a profound effect on the spread of the disease.—In other words, when such a fundamental characteristic of disease as age distribution is altered following the use of toxin-antitoxin, we can say with assurance that diphtheria prevention does prevent diphtheria."

In both the above mentioned towns, the age distribution has been wholly reversed, and in one of the towns the number of cases has been reduced from the recent average of 35 per year to 6 so far this year. In neither town, however, has there been any widespread use of toxin-antitoxin.

Either these experiences are exceptions that prove the infallibility of the "constant ratio" of age distribution, or the "bug" of diphtheria refuses to conform to man-made laws.

As adult diphtheria is reported to be appearing throughout this section of the country, the latter might seem to be the case.

Trusting that these unusual statistics may be of some slight help in getting at the truth regarding the present diphtheria problem,

Yours truly,
RICHARD DUTTON.

Wakefield, Mass., October 23, 1925.

RHODE ISLAND STATE BOARD OF HEALTH

CONTAGIOUS DISEASES REPORTED FOR THE WEEK ENDING OCTOBER 3, 1925

Diphtheria	4	Typhoid fever	4
Poliomyelitis	3	Measles	2
Chickenpox	2	Whooping cough	1
Scarlet fever	5		

CONTAGIOUS DISEASES REPORTED FOR THE WEEK ENDING OCTOBER 10, 1925

Diphtheria	6	Scarlet fever	8
Measles	5	Pneumonia	2
Whooping cough	1	Chickenpox	1

CONNECTICUT DEPARTMENT OF HEALTH

MORBIDITY REPORT FOR THE WEEK ENDING OCTOBER 17, 1925

Diphtheria	28	Cerebrospinal meningitis	1
Last week	26	Chickenpox	15
Diphtheria bacilli carriers	17	German measles	2
Scarlet fever	29	Influenza	1
Last week	23	Mumps	1
Typhoid fever	9	Pneumonia, lobar	33
Last week	10	Septic sore throat	1
Measles	20	Tuberculosis, pulmonary	24
Last week	22	Tuberculosis, other forms	1
Whooping cough	32	Gonorrhea	8
Last week	19	Syphilis	14
Anthrax	1		
Bronchopneumonia	13		

MORBIDITY REPORT FOR THE WEEK ENDING OCTOBER 24, 1925

Diphtheria	36	German measles	1
Last week	28	Influenza	1
Diphtheria bacilli carriers	56	Mumps	54
Scarlet fever	26	Paratyphoid fever	1
Last week	29	Pneumonia, lobar	30
Typhoid fever	10	Poliomyelitis	1
Last week	9	Septic sore throat	1
Measles	29	Tetanus	2
Last week	20	Tuberculosis, pulmonary	31
Whooping cough	37	Tuberculosis, other forms	1
Last week	32	Chancroid	1
Bronchopneumonia	17	Gonorrhea	17
Chickenpox	13	Syphilis	22
Dysentery (bac.)	1		

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

DISEASES REPORTED FOR THE WEEK ENDING OCTOBER 24, 1925

Anterior poliomyelitis	10	Ophthalmia neonatorum	23
Chickenpox	79	Pneumonia, lobar	65
Diphtheria	78	Scarlet fever	133
Dog-bite requiring anti-rabic treatment	6	Septic sore throat	1
		Syphilis	42
Encephalitis lethargica	8	Suppurative conjunctivitis	9
		Trachoma	1
Epidemic cerebrospinal meningitis	2	Tuberculosis, pulmonary	96
German measles	15	Tuberculosis, other forms	15
Gonorrhea	101	Tuberculosis, hilum	20
Influenza	7	Typhoid fever	17
Malaria	1	Whooping cough	167
Measles	331		
Mumps	27		

REPORTS AND NOTICES OF MEETINGS

AN IMPORTANT MEETING

ADVANCE information indicates that the meeting of the Surgical Section of the Suffolk District Medical Society to be held in the Boston Medical Library Nov. 18th, 1925, will be of unusual interest. The problems of Industrial Surgery will be considered.

Dr. William O'Neill Sherman, head surgeon of the Carnegie Steel Company, has been invited to address the meeting. An especial invitation has been issued to the Essex North District Medical Society to attend this meeting.

MASSACHUSETTS GENERAL HOSPITAL SECOND MONTHLY MEETING

THIS meeting will be held Thursday, November 12th, 1925, at 8.15 P. M.

Doctors, medical students and nurses are cordially invited to the meeting. The program is as follows:

1. Demonstration of Cases—House Staff.
2. Results of Treatment of Diabetes with Insulin—Dr. R. R. Wheeler.
3. Surgical Aspect of Diabetes—Dr. L. S. McKittrick.

Discussion by Drs. E. P. Joslin, D. J. Jones, and F. Gorham Brigham.

JOSEPH C. AUB.

THE MEETING OF THE SOUTHERN MEDICAL ASSOCIATION

DALLAS, Texas, will be the hostess to the Southern Medical Association which meets November 9-12, 1925.

The Schools of Medicine, Dentistry, Nursing and Pharmacy of the Baylor University are located in Dallas. Over $8,000,000 has been invested in hospital facilities with an excess of 1500 beds. The population is over 158,000 and there are 494 physicians.

The next annual meeting of the A. M. A. will be held in Dallas.

SECOND MEETING OF PHYSIOLOGICAL CONFERENCES

THE second weekly meeting of the Physiological Conferences will be held in the Bowditch Library of the Harvard Medical School on Monday, November 9, at 4 o'clock. Professor W. J. Crozier will speak on "Pulsating Organs in the Legs of Insects Examined from the Standpoint of Their Temperature Characteristics."

THE HARVARD MEDICAL SOCIETY

THE next regular meeting of the Harvard Medical Society will be held as usual in the amphitheatre of the Peter Bent Brigham Hospital,

Nov. 10, 1925, at 8:15 P. M. The program follows:—

1. Demonstration of cases.
2. With MacMillan in the Far North—Dr. Leo M. Davidoff.

All members of the Medical Profession, Medical Students and Nurses are invited.

S. A. LEVINE, M.D., *Secretary.*

SOCIETY MEETINGS

DISTRICT MEDICAL SOCIETIES

Berkshire District Medical Society

November 9—Regular meeting. A symposium on anaesthesia. Dr. Babcock of Philadelphia, Dr. Gwathmey and Dr. Labat of New York will speak. The Berkshire Dental Society will be invited to attend.

Essex North District Medical Society

January 6, 1926—The semi-annual meeting at Haverhill.
May 5, 1926—The annual meeting at Lawrence.

Essex South District Medical Society

November 5—Censors' meeting at Salem Hospital at 3:30 P. M.

Middlesex East District Society

November 11—At the Harvard Club at 6:30 P. M. Address by Dr. Channing Frothingham, "Treatment of Gastric Ulcer."
January 13—At the Harvard Club at 6:30 P. M. Address by Dr. Richard Ohler, "Metabolism."
February 10—At the Harvard Club. Subject and speaker unsettled.
April 14—At the Harvard Club at 6:30 P. M. Address by Dr. William E. Ladd, subject to be announced later.
May—Annual meeting, Colonial Inn, North Reading. Subject and speaker to be announced.

Norfolk District Medical Society

November 5—Censors' meeting.

Suffolk District Medical Society

Thursday, November 5—At 4 o'clock, at the Medical Library, No. 8 Fenway, a Censors' meeting will be held.
November 18—Surgical Section. "Industrial Surgery," by W. S. O'Neill Sherman of Bethlehem Steel Works.
January 6—Medical Section (meeting postponed from December). Dr. W. J. MacDonald will speak on "Experimental Work in High Blood Pressure."
January 27—Combined meeting with Boston Medical Library. "Medical Experience of an Explorer," Dr. J. Hamilton Rice.
February 24—Surgical Section. "Post-operative Care of Surgical Cases," Dr. Dean Lewis, Chicago. "Surgical Convalescence," by Dr. John Bryant.
March 31—Medical Section. Subject to be announced later.
April 28—Annual meeting. Election of officers. "Some Diagnostic, Prognostic and Therapeutic Aspects of Disorders of the Blood," Drs. George R. Minot, Cyrus C. Sturgis and Raphael Isaacs.

Worcester District Medical Society

November 11—Worcester State Hospital.

Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

BOOK REVIEWS

History of Medicine. By DR. MAX NEUBURGER, Professor of Medical History in the University of Vienna. Translated by Ernest Playfair, M.B., M. R. C. P. Vol. II, Part I, 135 pages. 8°. Paper covers. Oxford University Press, 1925.

Volume I of this noted history of medicine was translated by Dr. Playfair and published in 1910, largely at the instigation of Sir William Osler. In Osler's preface to Volume I we find the following note: "When Fasciculus I of Neuburger's *Geschichte der Medizin* came to hand I felt that here was a book which would be particularly useful to the English and American student—clearly written, not too exhaustive, and well and systematically arranged. In the present volume will be found the story of the growth of the profession to the Renaissance—a more or less continuous narrative may be easily and smoothly read in the large type, while in small type the student will find the authorities and special details."

The long delay between the publication of Volume I and Volume II is partly explained by the intervention of the World War and partly by a delay in publishing the German original. The present part covers the period from the Early Middle Ages through the Later Middle Ages, roughly from the Fifth to the Fifteenth Century. The style is the same as in the previous volume, a continuous narrative form in large print with more detailed notes in regard to authors and books in small letters. The book is very welcome to all students and readers of medical history and it is to be hoped that the future instalments will be published without further delay.

Reports of the St. Andrews Institute for Clinical Research, St. Andrews, Fife. Vol. II, pages 190. Oxford University Press, 1924.

This well-known institute, under the direction of Sir James Mackenzie, continues its reports on a variety of subjects. Most of the book consists of papers on the physiology of reflex action in relation to the production of symptoms in human subjects. Mackenzie contributes a general discussion on the principle of the reflex arc in the interpretation of cardiac signs, a paper of highly technical material illustrated wth pulse tracings and electrocardiagrams. He lays special stress on the behaviour of the A. V. node in auricular fibrillation and flutter. Another paper by Mackenzie deals with a further discussion of the physiology of the heart beat. An important clinical paper dealing with cardiac pain, and illustrated by many case histories and superb plates of the pathological anatomy of heart disease, is by Dr. James Orr. Professor P. T. Herring contributes a comprehensive discussion on "The Regulating and Reflex Process," a paper on normal reflex action. There are other physiological papers of similar worth. J. H. P. Paton writes a short clinical paper on influenza.

These various papers, now bound together in a convenient form, are a striking commentary on the value of the so-called "research institute," where the physiologist, clinician and pathologist can work together on the same or a closely allied problem. Most of the papers in this volume are the results of a careful and prolonged investigation based on Mackenzie's hypothesis that "early symptoms of disease manifest themselves by alterations in the normal reflexes of the body." At least as far as the heart is concerned, it would seem that Mackenzie had demonstrated the value of his postulate.